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## ANNUAL ORATION.

## SURGERY OF THE LUNG.

The Oration in Surgery Delivered at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Col., June 7-10, 1898.

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*Mr. President and Members of the American Medical Association:*—Permit me to express my appreciation of the great honor conferred on me when elected to deliver the Annual Address on Surgery to this distinguished body of scientists. Custom has ordained that the address in the specialties of medicine at our annual convocation should be confined to a review of the advancements of the science and art of this branch in general in the preceding year. I take the liberty of deviating a little from this precedent to review the efforts and achievements made in a special and, until the last two decades, neglected field of surgery. I believe I am justified in this digression, as at the last, our semi-centennial convention, my predecessor enumerated and so emphasized the achievements of surgery for the last half century that I fear the consideration of a year's progress would be of small interest.

I have therefore chosen for my subject today the surgery of the lung. An analysis of the accomplishments in this special line of work is of great interest, the advancements having been made by individual and unsupported efforts. The profession at large has never entered into this field with the enthusiasm, persistency and energy with which it has invaded other fields, as the peritoneum, the genito-urinary, the osseous and nervous systems. Indeed, if we were to take from the list of original investigators and operators in this field thirty names, it would be practically a blank; the work has been of a desultory character. The surgery of the lung has had its epochs of advancement. In no field of medicine has the intermittence in surgical effort been so conspicuous as in that of the lung. We find that Hippocrates, in the fourth century, B. C., recognized that pneumonic abscesses opened into the bronchus and slowly recovered in that way. He repeatedly opened them through the chest wall and resected the rib to obtain a better field. He advised thoracotomy and pneumotomy as the proper treatment for this class of cases[1]. These operations were then lost sight of and did not come to light again until 1584, when Schenk[2] recommended them. Oblivion was its fate again until Willis in 1664 drew attention to it. Bligney in 1670 reported a case of phthisis which was cured by accidental puncture of the chest with a sword; the opening allowed the pus to escape from the lung. Purmann in 1692 advised incision of the chest wall in hemorrhage, empyema and pulmonary cavities, and for removal of all kinds of effusions. Baglini in 1696 opened the chest. Baglivus in 1710 treated wounds of the lung by free incision of pleura and advised the same treatment for phthisical cavities. Berry of Dublin, in 1726, suggested the drainage of pulmonary cavities, and cited cases of recovery following pulmonary incision. Sharpe in 1769 dwelt on the difficulties of separating pleuritic adhesions and advised cutting into the cavity with the lance and inserting tubular drainage.[3] Pouteau and David in 1783 advised incision to pleura and trocar to depth of pus.[4] Faye in 1797 operated for abscess of the lung which was adherent, and advised puncture, irrigation and tampon; for such cases Jaymes and Richerand in 1813 advised incision.[5] H. Callisen in 1815 advised puncture and exploration of the chest by paracentesis, and if pus were detected, incision of the pleura; then digital palpation for fluctuation in the lung with immediate incision.[6] Zang in 1818 reported fifteen incisions of the chest wall, seven for empyema and eight for abscess. Nasse in 1824 incised a pulmonary cavity.[7] Krimer in 1830 wished to perform this operation, but the medical consultant would not consent. Brichatan in 1830 opened a cavity with a caustic paste and also one with the scalpel, in which he cut into the lung a distance of eight lines and then dilated with forceps. The latter patient lived nine months. Postmortem showed the cavity obliterated.[8] To the above list of investigators may be added the names of Brichet, 1831; McLeod, 1836; Clausen, 1839; Hastings, Herf and Collins, 1844. Then came a long period of quiescence until we find the subject again receiving attention as a modern advancement in 1873 by Mosler and Pepper.[9] Neisler, 1873, drained a tubercular cavity of the lung. The work of F. Mosler is conspicuous as he, though a medical man, advocated in repeated theses surgical interference in diseases of the chest. His efforts were ably supported by Koch and Bull, and the experiments of Gluck, Block, Hans Schmid, D. Biondi, and by the cases of Rugge, Christian Fenger, E. W. Andrews, Kroenlein, Omboni, Roswell Park, B. Pitts, Fabricant and others.

It would be impracticable for me to enumerate here the names of men who have labored so zealously in the interest of surgery of the lung, as they will be given due credit under the special headings to which their investigations contributed. Let us consider, first, the anatomy; second, the physiology; third, the experimental research, and fourth, the course and results in clinical cases. The last two we will take up under the headings of separate opera-

[1] Ed. Littré, Vol. vii, p. 61.
[2] Wm. Koch, History of Lung Surgery.
[3] Treatise of Operation in Surgery, London, 1769, p. 128.
[4] Mém. Surg., la Thesie Pulmonaire, Paris, 1783.
[5] Jour. Gen. Med., Vol. xlv.
[6] Callisen's System of Surgery. Ed. iv, Vol. i, 1815. p. 418.
[7] Harris' Arch. für Med. Erf., Band ii, Seite 117.
[8] Jour. Comp. des Sc. Méd., No. 36, p. 144, 1830.
[9] Deut. Med. Woch., 1882.

tions or pathologic conditions, while the first two, the anatomy and physiology, will be treated of here.

*Anatomy.*—The lungs are almost entirely situated within the bony cavity of the chest, the exception being the small projection of the apices above the level of the first rib. A straight line drawn, however, from the upper surface of the first rib behind to the upper surface of the clavicle in front, would pass above the apices. A straight line drawn in any position from the margin of the ribs and costal cartilages or sternum across the chest cavity below would not touch the lung. The chest has two diaphragms, the first closing a small kidney-shaped orifice, made up by the combined arches of the first ribs, the sternum in front and the spine behind. The large vessels of the neck, the trachea, esophagus and nerves pass through this orifice. This diaphragm rises and falls with each respiratory act, from one-half to one and

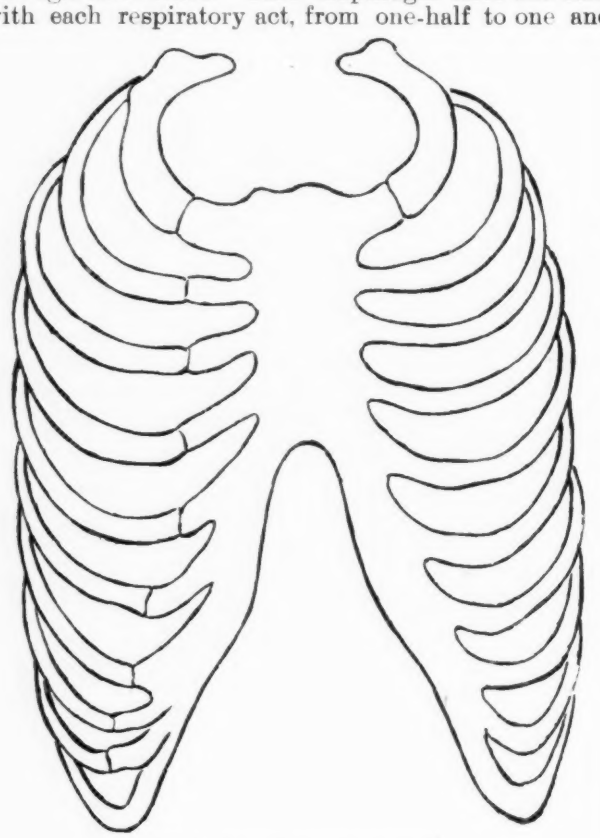


Fig. 1.—Normal healthy subject.

one-half inches in extent, depending upon the respiratory effort and the condition of the respiratory organs, moving most in health and least, if at all, in apical disease. The chest, from its upper diaphragm, in its normal shape represents a continuous conical expansion to the lower margin of the ribs. (See Fig. 1.) The dress in females converts it into a balloon shape; the same is true of emphysema; the most expanded portion of the chest, under these circumstances, is about the lower margin of the fifth rib; it then contracts to the costal margin of the twelfth rib. (See Fig. 2.) For many years it was the prevalent opinion that the lung filled the greater portion of the chest. The modern anatomist has demonstrated on frozen specimens that only a small portion of this cavity is occupied by the lung. The radiographs which I have had made show that the position of the diaphragm in the frozen specimen and cadaver is misleading. (See Figs. 3 and 4.)

The space embraced within the chest is filled in behind, first, by the anterior curvature of the heads and necks of the ribs and the bodies of the dorsal vertebræ; the spinal column extending far forward helps to make up the mediastinal septum, which divides the chest into two irregular flattened cones. The distance from the sternum to the spine is about two-thirds of the depth of the thickest portion of the cone, which is from the most prominent posterior part of the arc of the rib directly forward (as shown in Figs. 5 and 6 from Fowler and Godlee).

The hilum of the lung resting anterior to the spine is therefore about midway between the anterior and posterior margins of the chest cavity as outlined by the ribs. The anomalies of the ribs and the shape of the chest change the respective relations between portions of the lung and chest wall, and must be consid-

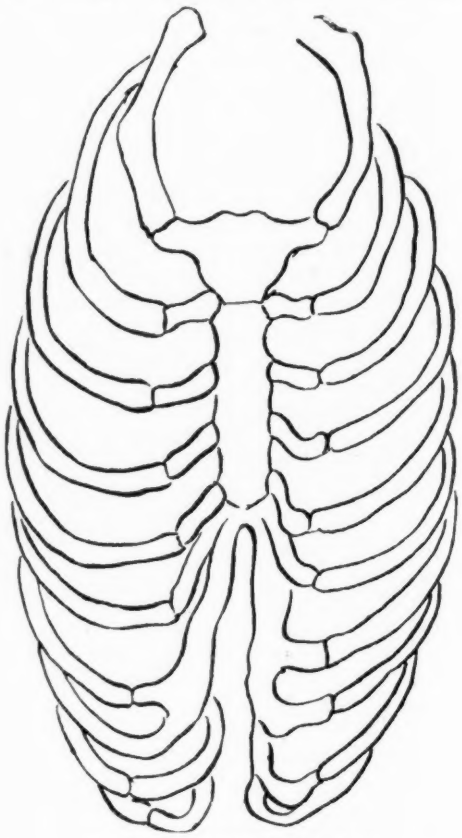


Fig. 2.—Deformed by tight lacing.

ered in the surgery of the individual case. When a seventh cervical rib is present it extends far above the level of the apex of the lung and may compress it, but it is not so likely to interfere with the lung as with the roots of the brachial plexus. An additional dorsal rib is usually accompanied by an elongation of the pleural cavity at that point, but the lung does not fill the pleura to its margin. A bifurcation of the ribs anteriorly has no particular influence upon the chest. The seventh is usually the last true rib; the eighth, however, is occasionally joined to the sternum. The width of the intercostal spaces is of importance; it is greatest in the second and third and tenth and eleventh, and is widest just at the tip of the bony end; it can be increased to its greatest degree when the spine is erect, but is not necesarily increased on inspiration. A division of the pectoral and intercostal muscles allows of a great increase in the separation of the ribs; this is most marked in the young.

The space in children attained in this manner usually suffices for operation without costal resection.

The sternum is not perpendicular; it deviates from this about 25 degrees. Its angle ranges in the respiratory act between the 160th and the 170th degrees. (Fowler and Godlee.)

The diaphragm forms the lower elastic, irregularly convex boundary of the chest. It is a very large-sized muscle with firm attachments to the entire circumference of the lower margin of the chest. It is in constant movement in health, and is the most powerful individual respiratory muscle. It is the piston of respiration; the chest wall is the cylinder. See

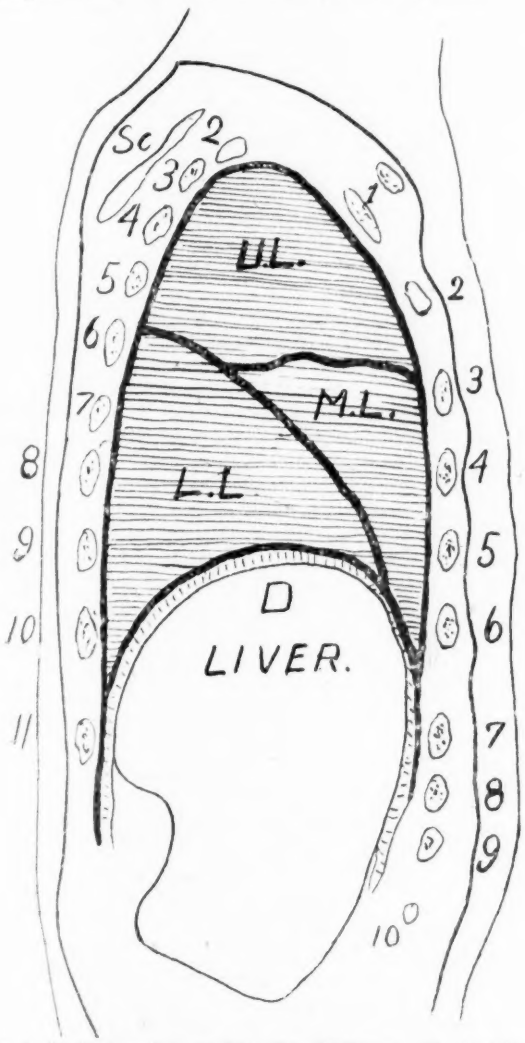



Fig. 3.—Sagittal section (right) after Rüdinger. Cl, clavicle; Sc, scapula; D, diaphragm; U.L., upper lobe of lung; M.L., middle lobe of lung; L.L., lower lobe of lung. The pleura is indicated by heavy lines.

Figs. 7 and 8. Its vaulting within the chest cavity is of the utmost import to the physician and surgeon. It is divided into two almost equal parts; the central and front part, corresponding to the position of the heart, is the highest and is practically stationary. It is on a level with the fourth interspace on the right side, with the sixth rib in the axillary line and with the eighth rib in the scapular line and the body of the ninth dorsal vertebra. On the left side at the points mentioned it is five-eighths of an inch lower. In health it varies from the third to the sixth interspaces in its vaulting. (See Figs. 7 and 8.) The origin of the central (spinal) portion is fixed, and its vaulting is changed by the contraction and relaxation of the diaphragmatic muscle assisted by the intra-abdominal pressure. The arch and length of the diaphragm are changed by the shape of the chest; it is shorter and higher arched in the hollow-shaped chest of females and emphysemata. In the balloon-shaped chest the diaphragm has the least action; this shape is considered a predisposing cause to phthisis. The degree of the vaulting of the diaphragm into the chest in life has been overestimated by anatomists from the examination made by them on the cadaver and frozen specimens; a study of my radiographs, a few of which

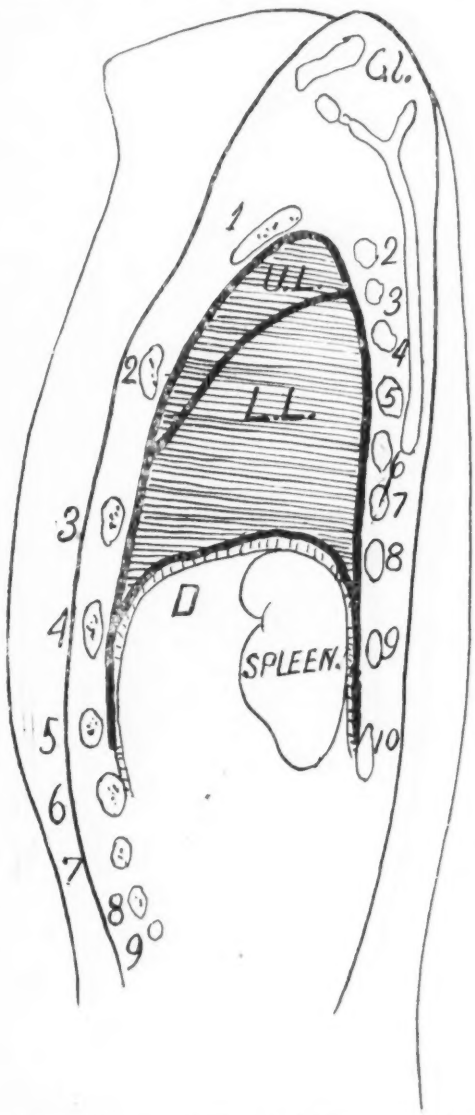


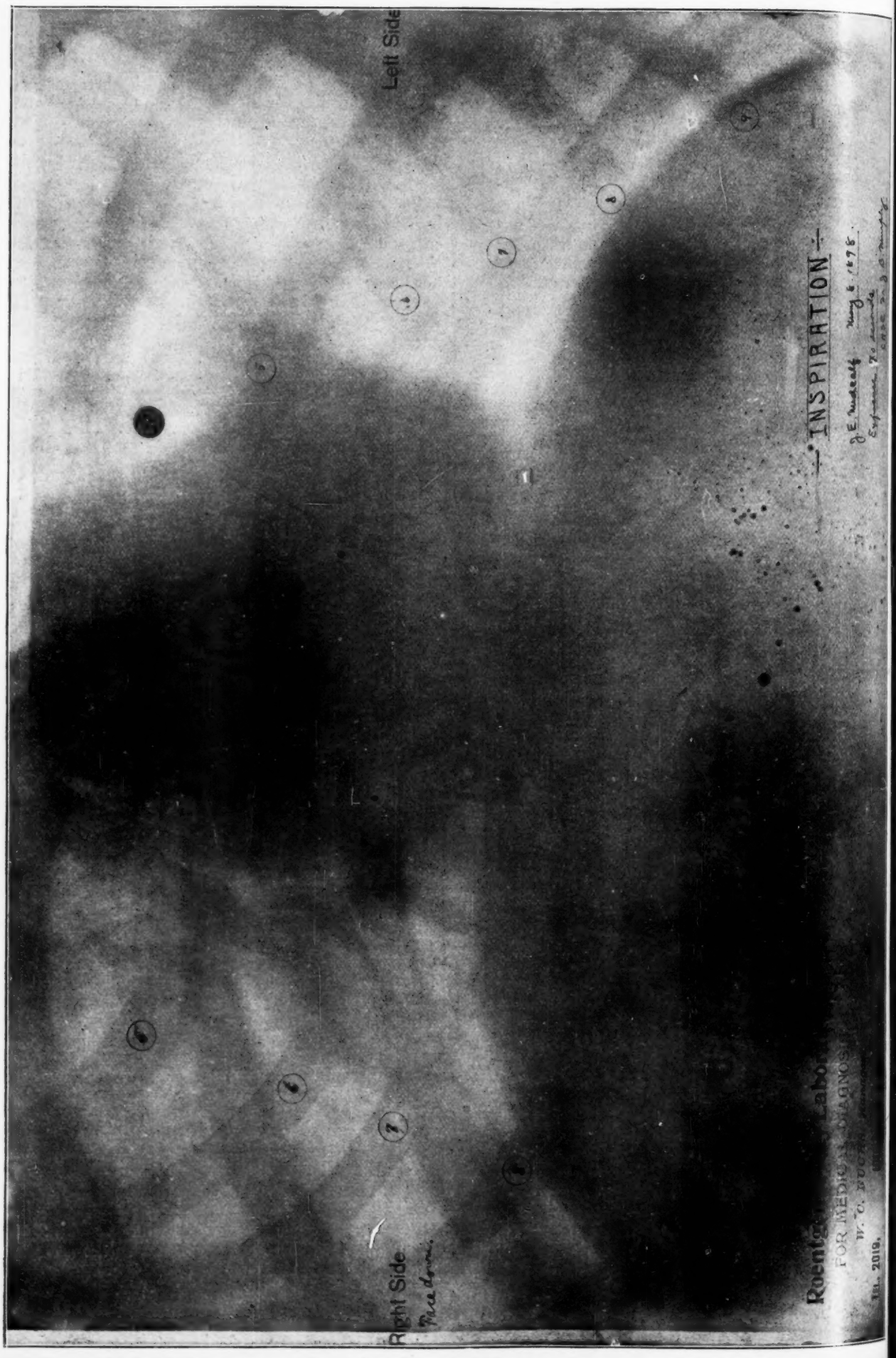

Fig. 4.—Sagittal section (left) after Rüdinger. Cl, clavicle; Sc, scapula; D, diaphragm; U.L., upper lobe of lung; L.L., lower lobe of lung. The pleura is indicated by heavy lines.

are here reproduced, will show that the diaphragm in forced expiration elevates to a level with the lower margin of the fifth rib in the extreme and usually only to the sixth rib. In forced inspiration it is an inch to an inch and a half lower.

It will be seen in radiograph No. 1, which was taken in full inspiration, held for seventy seconds during the entire exposure, that the diaphragm on the right side comes to a level with the middle of the seventh rib at its cartilaginous junction; on the left side that it is about three-eighths of an inch lower and passes to the margin of the ribs with a lesser vault.

Radiograph No. 2 shows that in complete expiration, held for forty seconds during the entire exposure in the same healthy individual, the highest

RADIOGRAPH No. 1.



portion of the diaphragm came to the upper margin of the sixth rib on the right side and was about one-fourth inch lower on the left. This shows the degree of movement of the diaphragm in the respiratory act.

Radiograph No. 3, from a male adult, exposure forty-five seconds, shows in complete retained inspiration that the diaphragm on the right side comes to the middle of the sixth interspace, and on the left side it extends about three-eighths inch higher. Radiograph No. 4, from same person as No. 3, shows the position of the diaphragm during complete exposure of forty-five seconds in extreme expiration; the diaphragm on the right side comes to a level with the lower margin of the fifth rib, and on the left side it extends about one-third of an inch lower.

Radiograph No. 5, Miss K., emaciated female, shows the diaphragm on the right side as taken during normal respiratory movements, face down; it extends to the lower margin of the fifth rib; the outline is not discernible on the left side. Radiograph No. 6, back down; Miss K., the same individual as radiograph No. 5, shows the diaphragm on the right side as taken during normal respiration; it extends to a level with the upper margin of the fifth rib in front and on a level with the middle of the tenth rib behind; the diaphragm on the left side is one-fourth inch lower. Radiograph No. 7, Miss K., showed the same result. The results in an additional number of radiographs not here reproduced have been practically the same.

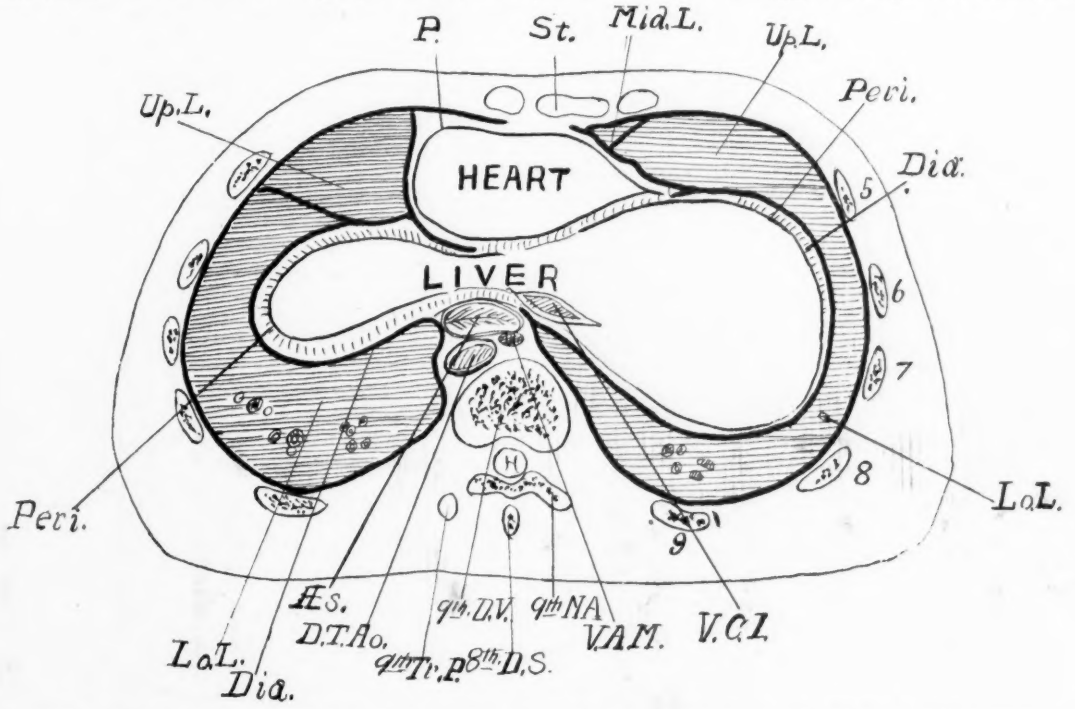


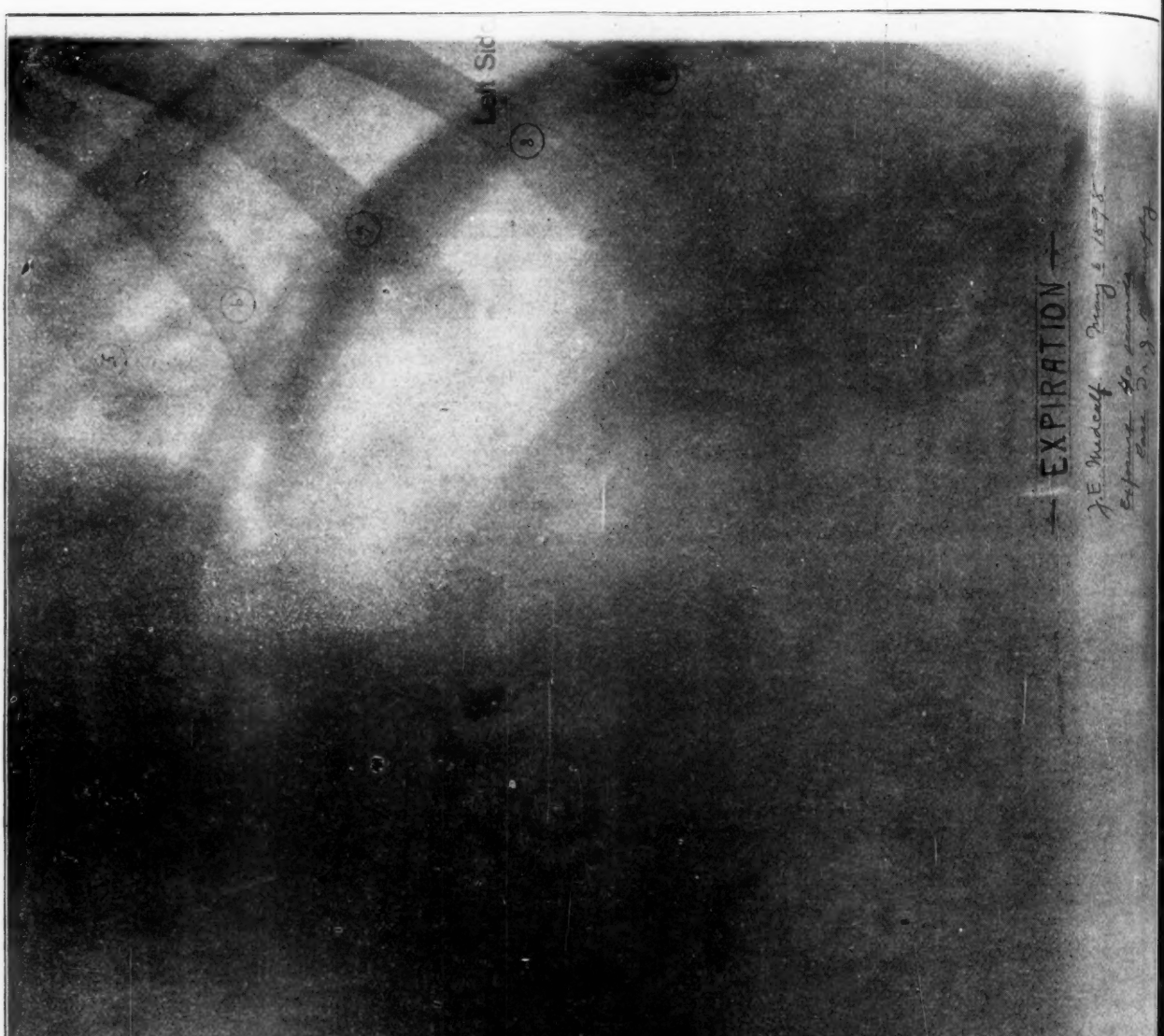

Fig. 5.—Through ninth dorsal vertebra. 9th D.V., ninth dorsal vertebra; 9th N.A., ninth natural arch; 9th Tr. P., ninth transverse process; 8th D.S., eighth dorsal spine; St., sternum; 5, 6, 7, 8, 9, ribs and cartilages; D.T.Ao., descending thoracic aorta; V.C.I., vena cava inferior; V.A.M., vena azygos major; Æs., æsophagus; Dia., diaphragm; P., pericardium; Up.L., upper lobes of lungs; Lo.L., lower lobes of lungs; Mid.L., middle lobe of right lung. The pleura is indicated by heavy line.

The *chest wall* is supplied with blood by the intercostal arteries; the first branch is given off from the subclavian and the others from the posterior surface of the aorta. They are close to the pleura behind and separated from it with the accompanying veins in front by the intercostal muscles. In addition the chest wall receives a blood supply from the internal mammary artery, which runs down behind the sterno-clavicular articulation, along the posterior surface of the rib cartilages about one-half inch from the sternum. At the sixth space it subdivides into the superior epigastric and musculo-phrenic; it gives off small intercostal branches in its course. An anomaly of this artery, an early subdivision at the second or third space, may occur and a large branch extend outward and downward in the direction of the nipple. This branch would be interfered with in most operations through the anterior wall of the chest. In operations on and accidents to the anterior chest wall the location of the internal mammary artery should be distinctly borne in mind, as fatal hemorrhage has occurred from incisions, or injuries to this artery. The intercostal veins empty into the azygos and superior intercostal veins. The azygos veins are large and flat and have scarcely a plus pressure. In separating the adhesions of a diseased apex on the mediastinal side the azygos must be given great consideration, as it is easily torn and has a double danger, hemorrhage and air embolus; the azygos completely collapsed in the dog with each inspiratory act. (See Fig. 9, azygos vein and internal mammary artery.)

*Lymphatics.*—The lymphatics of the chest wall connect with the intercostal glands situated at the costo-vertebral junction. The efferent vessels from these glands empty into the thoracic duct, their lower branches into the receptaculum chyli. In front they run forward with the internal mammary artery and vein, where they have additional glands (sternal). The substernal glands also receive lymphatics from the anterior abdominal wall, diaphragm and liver. This anatomic feature explains the secondary mediastinal infections and tumors which occur from diseased foci at and below the diaphragm.

*The mediastinum* is best studied with the classification of Quain: the superior mediastinum, is that above a line drawn on a level with the upper border of the pericardium from the lower portion of the fourth dorsal vertebra behind to the junction of the

RADIOGRAPH No. 2.



manubrium with the body of the sternum in front. It contains the trachea, esophagus, thoracic duct, the arch of the aorta, the innominate, left common carotid and subclavian arteries, innominate veins and the upper part of the superior vena cava, the phrenic and pneumostric nerves, the left recurrent and cardiac nerves, the cardiac lymphatics and the remains of the thymus gland. The anterior mediastinum is the narrow upper half; the two pleuræ come in contact in this position, and occasionally have a communicating foramen. This opening is more common in the dog and is very detrimental to experiments. It is less frequently found in the guinea pig and rabbit. In monunguals (single hoofed animals) it is always present. When a foramen does not exist in the dog the mediastinum not infrequently ruptures at this point, when one side of the chest is opened, and allows both lungs to collapse. The septum is thinnest behind the second portion of the sternum, and the pleuræ diverge above and below from that point. (See fig. 9.) This space contains only a few glands and areolar tissue.

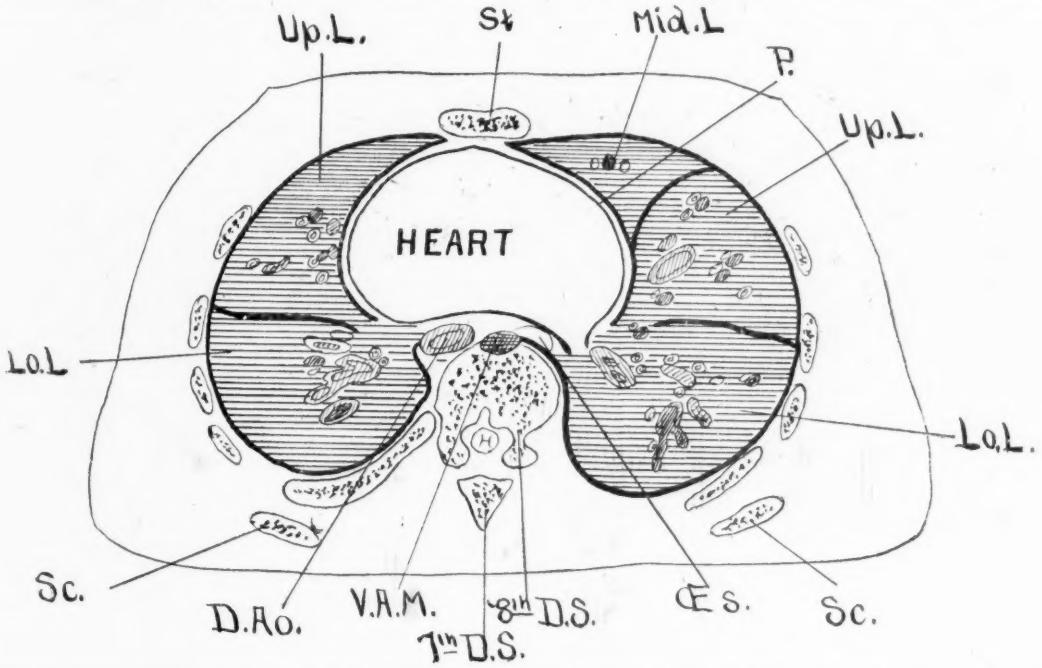



Fig. 6.—Through eighth dorsal vertebra. 8th D.V., eighth dorsal vertebra; 7th D.S., seventh dorsal spine; Sc., scapula; St., sternum; D.Ao., descending thoracic aorta. V.A.M., vena azygos major; Es., œsophagus; P., pericardium; Up.L., upper lobe of lungs; L.L., lower lobe of lungs; Mid.L., middle lobe of right lung. The pleura is indicated by heavy lines.

The middle mediastinum is the enlarged central portion which contains the pericardium and its contents, the phrenic nerves and accompanying vessels, the arch of the azygos veins and the roots of the lungs with their bronchial glands. The posterior mediastinum is situated between the pericardium, the diaphragm and roots of the lungs in front, and the spine behind. It contains between its pleural layers the descending thoracic aorta, the esophagus, the azygos veins, the thoracic duct and the posterior mediastinal glands. We must be mindful that the lower half of the superior vena cava is in the middle mediastinal space close to the trunk of the pulmonary artery and vein on the right side and must not be included in the ligature nor torn in separating the adhesions at the hilum of the lung. The right auricle is also endangered in this position and has been injured in experimental pneumectomy on animals. While separating an adherent diseased lung in a cadaver I tore directly into the auricle; after recognizing the condition it was difficult to separate the auricle from the pleura. Injury to the mediastinal contents is one of the greatest dangers in the operative technique of pneumectomy.

*The pleura* is a mesoblastic product like the peritoneum and meninges, or according to Waldeyer and His a hypoblastic product. It is composed of a thin fibrous layer covered with endothelia. It reacts rapidly to irritants, but is not so active in its reproduction as the peritoneum. It is a closed sac completely lining the chest wall and enveloping the lung except at its hilum and is divided into parietal and visceral laminæ. The pleura pulmonaris envelops and is firmly attached to the lung; it has depressions lining its fissures. The pleura costalis is attached to the ribs by a layer of connective tissue. In health it is practically impossible to separate the pleura from its attachment to the rib without opening its cavity. In disease it is often very much thickened and can be readily pulled off without the danger of pneumothorax. The pleura mediastinalis is attached to all of the important structures of the mediastinum, the esophagus, trachea, pericardium, vagus nerves, innominate artery, superior vena cava, phrenic, etc. These attachments are practically the same on both sides. The pleura is intimately attached to these structures and can not be removed without a careful dissection. In separating a lung adherent in the mediastinum great care must be taken to keep on the pulmonary side of the adherent pleura, as there is danger of rupturing important mediastinal structures; further, the two pleuræ may be adherent and in separating them the other pleural cavity might be opened. This would most likely occur between the esophagus and the aorta, in front of the seventh, eighth or ninth vertebral bodies, or on a level with the third interspace in front. (C. Jannesco.) (See Figs. 10 and 11, showing extent of pleura. See Fig. 9, showing approximation of the pleuræ at the seventh, eighth and ninth vertebræ.)

When the pleura is deflected from the mediastinum

RADIOGRAPH No. 3.

above, at the apex, it is attached to the innominate vein or the scalenus anticus muscle and further out to the subclavian artery and brachial plexus. The upper curve is flattened or concave in the center; it extends to a level with the neck of the first rib, but it is about three-fourths of an inch above the inner end of the clavicle. The attachment to the innominate vein and subclavian arteries are important factors in pneumectomy for apical disease, as adhesions are almost certain to exist. Visceral and parietal adhe-

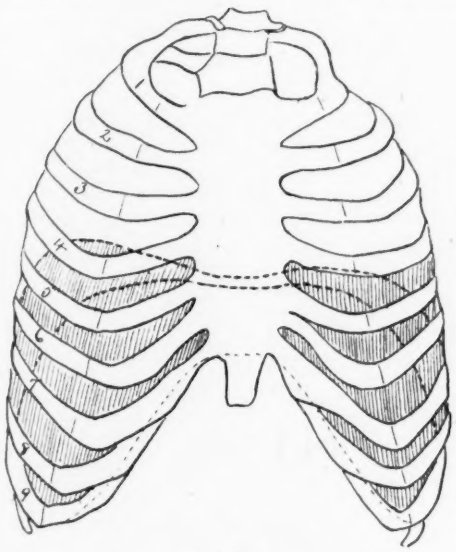


Fig. 7.

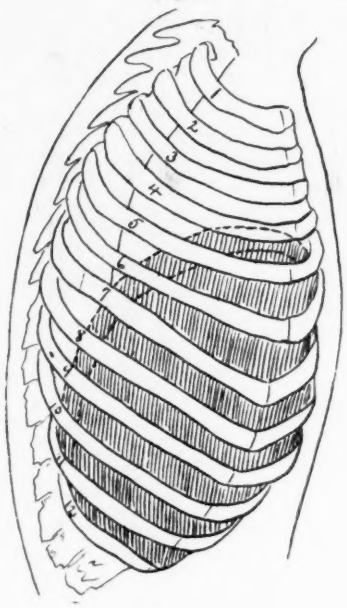


Fig. 8.

Figs. 7 and 8.—Highly arched diaphragm from front and side. The upper dotted line represents it when relaxed (expiration) and lower line when contracted (inspiration).

sions of the pleura at this point occasionally produce a paralysis of the abductor muscles of the vocal cord on that side and the symptoms of laryngeal paralysis.[10]

The lower limits of the pleura are somewhat variable; on the right side in front it is attached to the sixth costal cartilage, the sixth space or the seventh rib and cartilage. From here it passes outward and downward to the eighth, ninth, tenth and eleventh ribs in an undulating and irregular manner and to the head of the twelfth rib and its vertebra. It often extends an inch to an inch and a half below the twelfth rib, and even below the costal arch along the margin. This occurs most frequently upon the left side, as on this side it is as a rule five-eighths of an inch lower all around than on the right. (See Figs. 10, 11.) The pleura diaphragmatis is deflected from these attachments and completely covers the diaphragm except at the mediastinum; it is thin and firmly attached. The sternal attachment of the pleura varies; it recedes gradually from the center at the lower margin of the fifth space on the right side; it recedes more abruptly from the fourth rib on the left side, exposing the pericardium in the fifth interspace immediately to the left of the sternum. The pericardium may be opened in this position without interfering with the pleura. The anterior attachment of the right pleura often extends to the left of the median line and even to the left margin of the sternum. In normal condition the visceral and parietal pleuræ are in close contact; effusion, hemorrhage and pneumothorax may change the positions.

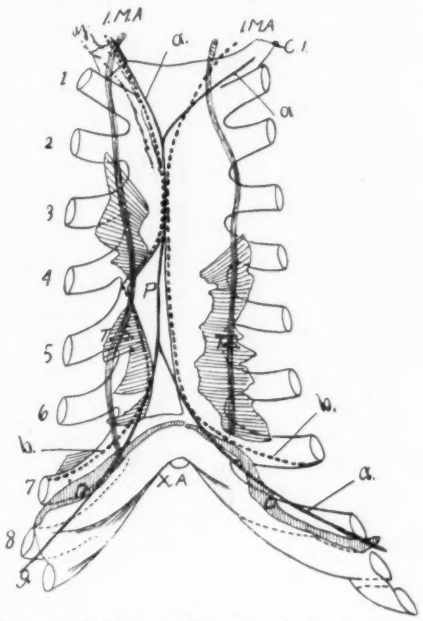



Fig. 9.—X.A., xiphoid appendix; Cl., clavicle; T.S., triangularis sterni; I.M.A., internal mammary artery; D., diaphragm; P., pericardium; a, line indicating usual position of pleura; b, dotted line indicating unusual position of pleura.

*The lungs.*—The lung is an irregular, pyramidal semi-cone, concave in its center or hilum formed to the mediastinal contents; concave on its under surface for its adaptation to the diaphragm; it is convex and undulating in its entire outer surface. It does not extend to the limitations of the pleural cavity in many positions, particularly at its lower margin. The lower margin of the right lung starts at the cartilage of the sixth rib; it passes obliquely outward and downward to the seventh interspace in the mammary line and then almost vertically backward to the end of the eleventh rib. On the left side it is about three-eighths of an inch lower than on the right except in the incisura cardiaca, where the pericardium is exposed. It can be seen in comparing this margin with the lower boundaries of the pleura that the latter extends from one to one and one-half inches below the border of the lung. Sappy claims that the lung extends as far as the border of the tenth rib behind and only to the fifth rib in front on the right and to the sixth on the left side. The general impression regarding the thickness and shape of the lower lobe

[10] Fowler and Godlee.

is erroneous, as it is believed to extend almost inward from the margin described, while in reality the under surface is represented by an irregular conical excavation (formed by the diaphragm) extending from its base one inch to the inner side of the lower boundary of the lung all the way around up to a level with the fifth rib in the center near the hilum of the lung. (See Fig. 12.) The degree of elevation of this cone is changed in pathologic conditions. In intrapleural effusions it may be depressed to a level with the eighth interspace. (See Figs. 10, 11.) With subphrenic pathologic products it may be elevated to the third interspace; in explorations with the needle the diaphragm may be punctured and the location of the exudate miscalculated, as the following case illustrates:

J. C., male, age 44, butcher; had suffered from dysentery for three weeks; was attacked with severe pain in the right side near the costal arch; this was rapidly followed by chills and fever, temperature reaching 105.3 degrees. Patient rapidly assumed a typhoid condition, low muttering delirium, dry tongue, tremor, etc. When the author saw him in consultation the dulness extended to the nipple in front and an inch above the angle of the scapula behind; there was a slight

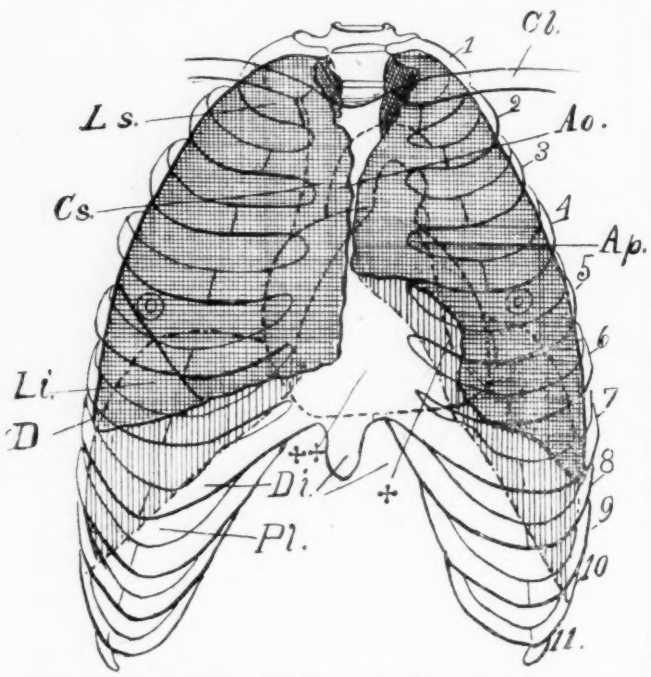



Fig. 10.—Front of chest, showing relation of lungs and pleura to chest wall. 1 to 11, ribs; Cl., clavicle; D., diaphragm; Di., insertions of diaphragm; Ao., aorta; Ap., pulmonary artery; X, incisiona cardiaca; X X, pericardium in contact with chest wall; Ls., upper lobe of lung; Lm., middle lobe of right lung; Li., lower lobe of lung.

deviation with change of position, there was bulging of the intercostal spaces, and the line of dulness extended two inches below the costal arch. The diagnosis of hepatic abscess with subphrenic and intrapleural rupture was made. An exploratory puncture in the seventh interspace, scapular line, first, on withdrawing the piston gave a clear fluid; the needle was introduced an inch further and the syringe filled with pus; diagnosis was changed to subphrenic, hepatic abscess. Operation proved the correctness of the latter diagnosis. The fluid first withdrawn was the secretion from the inflamed diaphragmatic pleura.

The apex of the lung is blunt and shows a depression where it is adapted to the subclavian artery, from which it is separated only by the pleura. The right lung is divided into three lobes by two fissures, the left into two lobes by one fissure. The great fissure in the right lobe separates the lower from the upper and middle lobes, and extends from beneath the second dorsal spine at first longitudinally outward and then obliquely downward to the lower border of the lung opposite the middle of the sixth costal cartilage, and usually passes below the nipple. (See Figs. 13, 14.) The middle fissure originates about the middle of the great fissure beneath the junction of the fourth interspace with the middle axillary line and

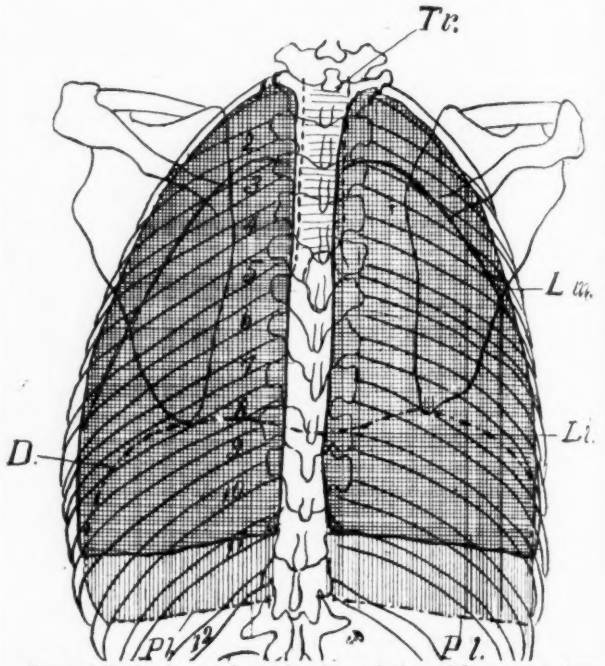



Fig. 11.—Back view of chest, showing relation of lungs and pleura. 1 to 11, ribs; Tr., trachea; D., diaphragm; Pl., Pleura; Lm., middle lobe of right lung; Li., lower lobe of lung.

passes almost horizontally forward following the line of the fourth rib to the fourth costal cartilage. It separates the upper from the middle lobe. These fissures extend almost to the hilum of the lung. (See Fig. 15.) In disease the pleura lining the fissure becomes adherent, obliterating the fissures; not infrequently these fissures are the seat of circumscribed serous and purulent pleuritic effusions and are mis-

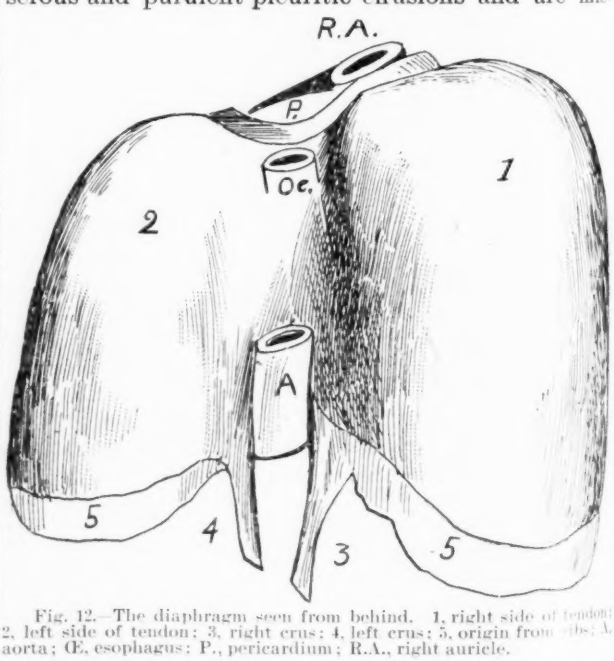



Fig. 12.—The diaphragm seen from behind. 1, right side of tendon; 2, left side of tendon; 3, right crus; 4, left crus; 5, origin from ribs; A, aorta; Œ, esophagus; P., pericardium; R.A., right auricle.

taken for cysts and abscesses of the lung. The fissure in the left lung corresponds to the great fissure of the right except that it passes a little higher in front at the cardiac margin of the lung. (See Figs. 16, 17.)

The pleura covering the lung is thin and firmly adherent. Anomalies as to the number of lobes and fissures are not uncommon, although the absence or non-development of a lobe is very rare; the most frequent anomaly is the absence of a fissure. Accessory lobes in the right lung have been recorded. In the dog as many as six have been found.

The right is the larger lung. An irregular notch in the left lung exposes the pericardium and gives the area of precordial dulness, which is irregularly triangular in shape; its first point of the base is at the middle line of the sternum opposite the fourth costal cartilage; the apex of the triangle is at the point of the apex beat, and the second point of the base is at the junction of the ensiform cartilage and the body of the sternum. The hilum or root of the lung is situated in a depression at about the middle of the lung between its apex and its lower margin about equi-

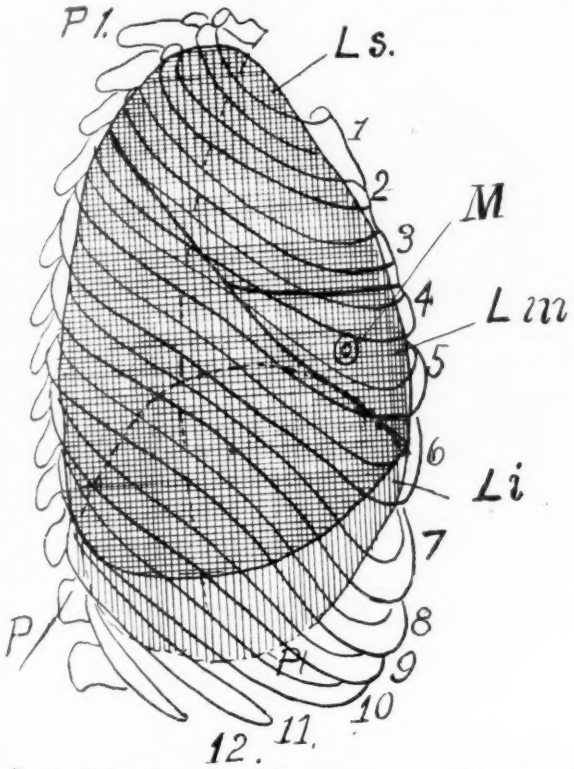



Fig. 13.—Right side of chest. P1., spinus process of first thoracic vertebra; P12., spinus process of twelfth thoracic vertebra; 1 to 12, ribs; M., nipple; Ls., upper lobe of lung; Lm., middle lobe of lung; Li., lower lobe of lung; Pl., pleura.

distant from its anterior and posterior borders; it is occasionally nearer the anterior. The root is composed of the bronchus and its subdivisions, the large blood vessels, nerves, lymphatics and glands, surrounded by areolar tissue and reflections of the pleura; the root is on a line with the fifth, sixth and seventh dorsal vertebræ and almost directly behind the fourth costal cartilage and third interspace, on a line with the longitudinal fissure. The order of arrangement in the root (see Fig. 18), on the right side from above downward is, first, the pulmonary artery and its subdivisions; a little below that level and just behind is the eparterial bronchus; lower is the main bronchus behind and the pulmonary vein in front and a few smaller branches below; the left auricle presses in close to the bronchus behind and the right auricle a little lower in front. The order of arrangement in the root on the left side from above is, pulmonary artery and subdivisions, the bronchus and subdivisions of pulmonary veins and the pulmonary artery. The root of the right lies behind the superior vena cava and part of the right auricle. The vena azygos arches over it to enter the superior vena cava. The root of the left lung passes below the arch of the aorta and in front of the descending aorta, appearing to come out of the hook formed by the aorta. It is situated a little nearer the anterior wall of the chest than the right. The phrenic nerves pass in front of the roots on both sides and the pneumogastric behind. The bronchi are in the same relative position, posterior to the large vessels; they can therefore be ligated in front separately from the bronchus in pneumectomy. The vena azygos must not be included in the ligature and must be carefully separated from the adhesions to the lung, so that the root of the lung can be brought well forward for ligation.

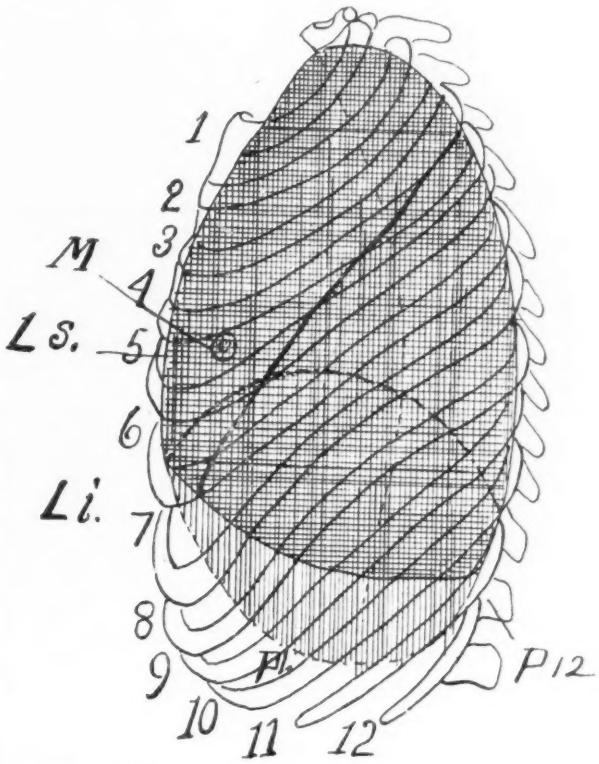



Fig. 14.—Left side of chest. P1., spinus process of first thoracic vertebra; P12, spinus process of twelfth thoracic vertebra; 1 to 12, ribs; M., nipple; D., diaphragm; Pl., pleura; Ls., upper lobe of lung; Li., lower lobe of lung.

*The trachea and bronchi.*—The trachea which has from fifteen to twenty cartilaginous rings measures four to four and one-half inches in length and three-fourths to one inch in diameter; it is situated in the central portion of the mediastinum; the arch of the aorta passes across it in front just above its bifurcation. (See Fig. 19.) It divides into two bronchi, the right and left, on a line with the fifth dorsal vertebra, which lead to the corresponding lungs. The right bronchus is about one inch in length; it is shorter and wider than the left, and in direction is more continuous with the line of the trachea (Aeby); in size the transverse section of the tubes is in proportion of 100 to 78. The right is composed of six to eight cartilaginous rings, while the left, which is two inches in length, has nine to twelve cartilaginous rings. The rings are thin and cover about two-thirds of the circle of the bronchus, the remainder behind is membranous, resembling the trachea in this par-

ticular. The right bronchus gives off a branch to the upper lobe about an inch from the margin of the trachea. The external covering of the larger divisions of the bronchi is made up of connective tissue and a few muscle fibers. The connective tissue is greater behind, as it takes the place of the cartilage in that portion of the circle. This covering can not be peeled off the bronchus without laceration, rendering it impossible to make a "cuff" when the bronchus is amputated, as we do in amputation of the appendix. The mucosa is a thin, delicate membrane made up of lymphoid cells and ciliated epithelia. The submucosa which secures the mucosa to the cartlage is thin and friable and easily destroyed with pressure. It can not be peeled from the inner surface of the bronchus, nor can it be invaginated for the purpose of producing occlusion of the bronchus after pneumectomy. The histology of its method of closure will be described in the experiments.

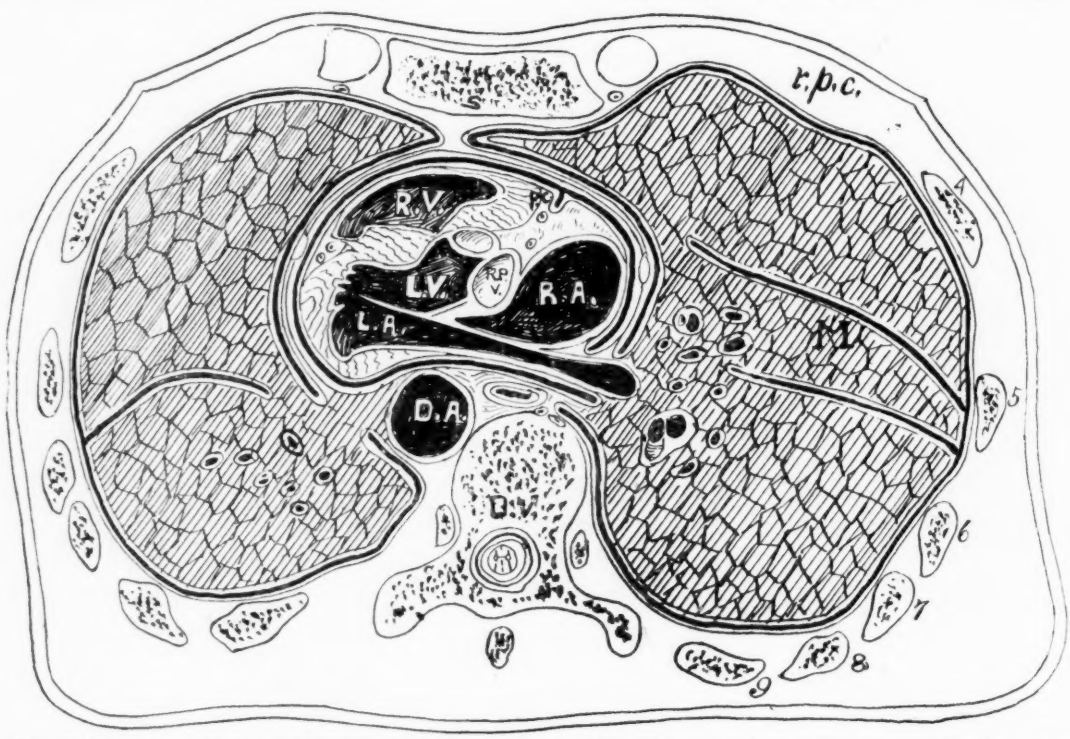



Fig. 15.—Horizontal section of the thorax of a man, aged 57, at the level of the nipple, as seen from above. N., nipple; M., middle lobe of right lung; R.A., right auricle; R.V., right ventricle; L.A., left auricle; L.V., left ventricle; R.P.V., right posterior valve of aortic orifice; r.p.c., right pleural cavity.

## PHYSIOLOGY OF RESPIRATION.

Respiration is essentially the intake of oxygen and the output of carbon dioxid by living cells. There are but two acts in the process, the external, the exchange of gases in and out of the blood; and the internal, the exchange from the blood to the cells. Mayow in 1668 discovered the real function of respiration, and declared that it was the absorption of nitro-aerial gases (oxygen)[11]. He also showed its similarity to combustion. Hale showed in 1726 that "noxious vapors were exhaled,"[12] and Black[13] showed these gases to consist of a "fixed air," carbon dioxid. Priestley, 1772, demonstrated that plants restored the property of supporting animal life to air which had been vitiated by animal respiration or by combustion. Lavoisier and LaPlace, 1777, taught that animal heat was the result of the oxidation of the tissues and was a process of combustion; they believed the action took place in the lungs, but admitted that it might be in other organs of the body. It was later shown that the quantity of oxygen consumed is generally much less in cold-blooded than in warm-blooded animals. Most insects are marked exceptions to this rule, as they have a metabolism equal to that of the larger mammals. The respiratory exchange in warm-blooded animals is influenced by age, size of body, external temperature, muscular activity, rest, digestion, hunger and hibernation. Cold increases and heat lessens the respiratory exchange. It is the reverse of what has been observed in cold-blooded animals. It was illustrated by Levoisier and Seguin, who showed that a man at rest at a temperature of 32.5 degrees absorbed in an hour 34.49 grams of oxygen, but at a temperature of 15, 38.31 grams of oxygen. Exercise increases the absorption of oxygen. (See Schaefer's Physiology, London, 1898). The hyperpnea following exercise is not due to excess of carbon dioxid in the blood as the result of increased metabolism, as the blood contains more oxygen and less carbon dioxid than during rest.[14] It is probably due to some product of muscular activity which is absorbed by the blood and carried to the medulla, there to stimulate the respiratory center. Tartaric acid injected into the blood increases respiration; sodium hydrate (n: 1 sol.) diminishes respiration.[15]

A man at work absorbs 91.2 grams of oxygen an hour, while at rest he absorbs 38.3 grams an hour at a temperature of 15 degrees C.[16] The carbon dioxid eliminated by a man at rest, asleep, is 161.6 c.c. per hour. During a walk at three miles an hour, it is 851.2 c.c. an hour.[17] The percentage of carbon dioxid in the air exhaled is not changed, but the volume of air is increased.

11 Phil. Trans., London, 1666, p. 424; Ibid, 1670, pp. 2011-2035.
12 Statical Essays, 2d edition, 1731, Vol. 1, p. 236.
13 Lectures on Chemistry., Edinburgh, 1803.
14 Mathieu et Urbain: Arch. de Physiol.
15 Lehmann: Arch. f. d. ges. Phys., Bd. xlii, p. 284.
16 Levoisier: Loc. Cit.
17 Smith: Phil. Trans., Vol. cxlix, Pt. 2, p. 681.

*Influence of food.*—The ingestion of a meal upon respiratory exchange causes a marked intake of oxygen and output of carbon dioxid, due to the chemical changes which take place in food during digestion and absorption, and the increase of muscular and glandular activity of the alimentary tract. Smaller animals have a greater respiratory exchange than larger ones, other things being equal.

*Influence of day and night.*—There is a marked difference in the quantity of carbon dioxid produced between day and night. The increased exchange reaches its maximum from 11 A.M. to 1 P.M., and its minimum from 8 to 9 P.M.[18] The respiratory exchange is greater in the young than in the aged per kilogram under the same conditions.[19] Amphibia respire through the skin and mucosa of the alimentary tract, and in some this respiration is greater than that of the lungs. Cutaneous and alimentary respiration in mammals has been a field for considerable controversy, but it is the consensus of opinion that respiration takes place through the skin and alimentary canal. (See Cruikshank, Experiments on the insensible perspiration of the human body, showing its relation to respiration, 1871).[20]

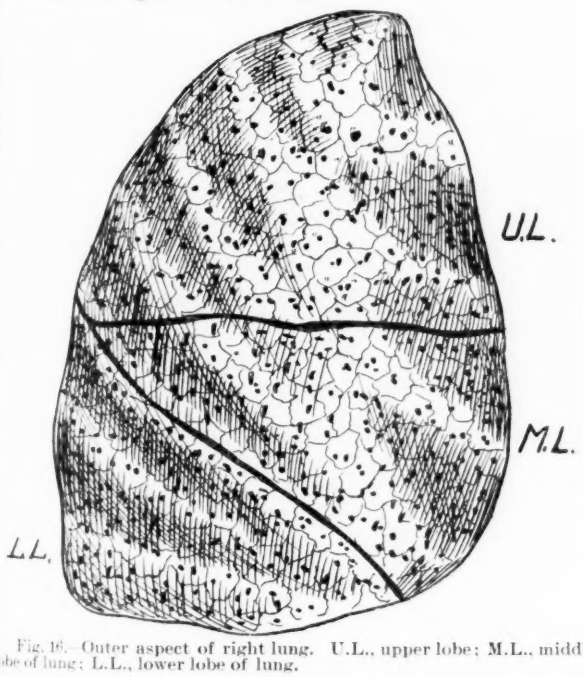



Fig. 16.—Outer aspect of right lung. U.L., upper lobe; M.L., middle lobe of lung; L.L., lower lobe of lung.

The respiration of fetal life, or exchange of carbon dioxid and oxygen, is very much less than in adults, about the proportion of 1 to 100.[21] The respiration of the embryo in the egg of fowls and snakes takes place through the shell. If the egg is kept in a warm atmosphere of hydrogen for more than twenty-four hours the embryo ceases to live. The development of the embryo is neither hastened nor delayed if the egg is kept in an atmosphere of oxygen.[22] This is in consonance with the exchange of oxygen in pulmonary respiration.

The amount of respiratory exchange in animals under normal conditions is not augmented by an increase of oxygen in the inspired air, but under pathologic conditions where the respiration is interfered with and where the blood is abnormally venous, an increase of oxygen in the air inspired produces an increased exchange of gases.[23] This is a physiologic indication for the clinical use of oxygen in certain pathologic conditions of the respiratory apparatus, as pneumonia, compression of the lung, etc., and is also a positive indication for the administration of oxygen by inhalation after all operations which diminish the respiratory area of exchange.

The inhalation of air with a diminished quantity of oxygen produces marked symptoms, as observed in mountain climbing and balloon ascension. They are due to anoxemia, as was shown by Jourdanet.[24] The effect produced by air vitiated by repeated respiration is due to the deficiency of oxygen and the presence of carbon dioxid. The hyperpnea is due to the excess of carbon dioxid and not to the deficiency of oxygen. When the carbon dioxid exceeds

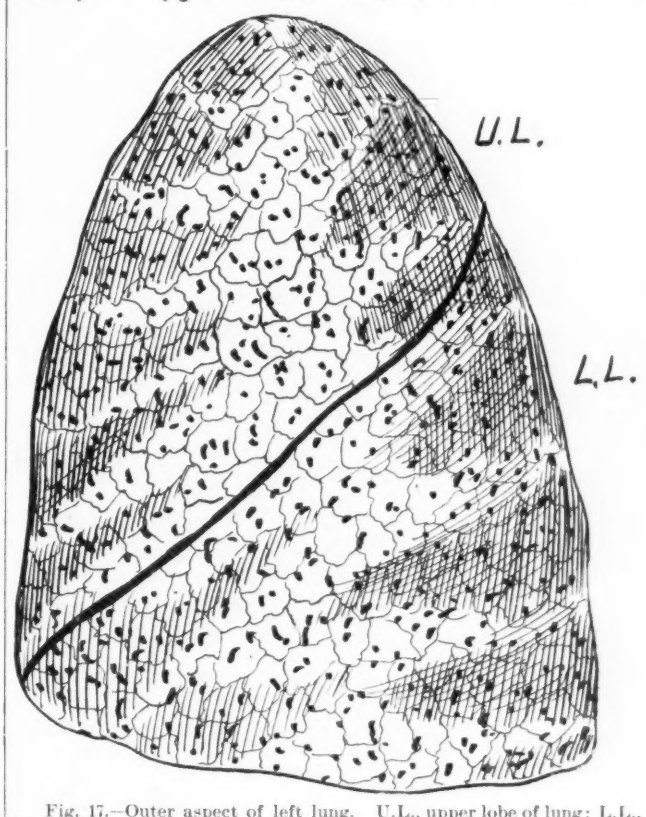



Fig. 17.—Outer aspect of left lung. U.L., upper lobe of lung; L.L., lower lobe of lung.

3 per cent. the hyperpnea is appreciable; at 10 per cent. it is marked; the frontal headache is due to the excess of carbon dioxid. When the oxygen is diminished to 12 per cent. the hyperpnea is appreciable and is excessive at 6 per cent.[25] Warm-blooded animals confined in a limited quantity of air die from want of oxygen and the blood is venous. The lack of oxygen produces its effect before the accumulation of carbon dioxid is sufficient to produce poisoning. Death takes place when the oxygen is reduced to 3 per cent. and the carbon dioxid increased to only 15 per cent. The fatal amount of carbon dioxid is 25 per cent.

The respiratory exchange in children and animals immediately after birth is very much less than later in life; this explains the fact that at this time they may be restored by artificial respiration a much longer time

[18] Vierordt: Phys. Carlsruhe, 1845. Wagner's Handwörterbuch, Bd. ii u. iii, p. 886.
[19] Andral: Chem. and Pharm., 1843, Bd. xlv, p. 214.
[20] Aubert and Lange: Arch. f. die ges. Phys., 1872, Bd. vi, p. 539.
[21] Zuntz: Arch. f. ges. Phys., 1877, Bd. xiv, p. 605.
[22] Pott: Arch. f. ges. Phys., 1883, Bd. xxxi, p. 268.
[23] Levoisier et Seguin: Hist. Acad. roy. d. Sc., Paris, 1789, p. 566.
[24] Jourdanet: Paul Bert's Work.
[25] Haldane and Smith: Jour. of Path. and Bact., 1892, Vol. i, p. 875.

after respiration has ceased than could be accomplished later in life. The increase of respiration during exercise does not seem to be due to an increase of carbon dioxid or lack of oxygen in the blood, but to the accumulation in the blood of some product of muscular activity. If the exertion be continued its effect ceases, the pulse becomes slow, the respiration less frequent, and the man is said to have his second wind, after which the same degree of exertion may be continued with comparative comfort for a long time.

The quantity of air exchanged in each respiratory act is a matter of great importance from a medical as well as a surgical standpoint. What is the minimum tidal exchange which is consistent with life in man

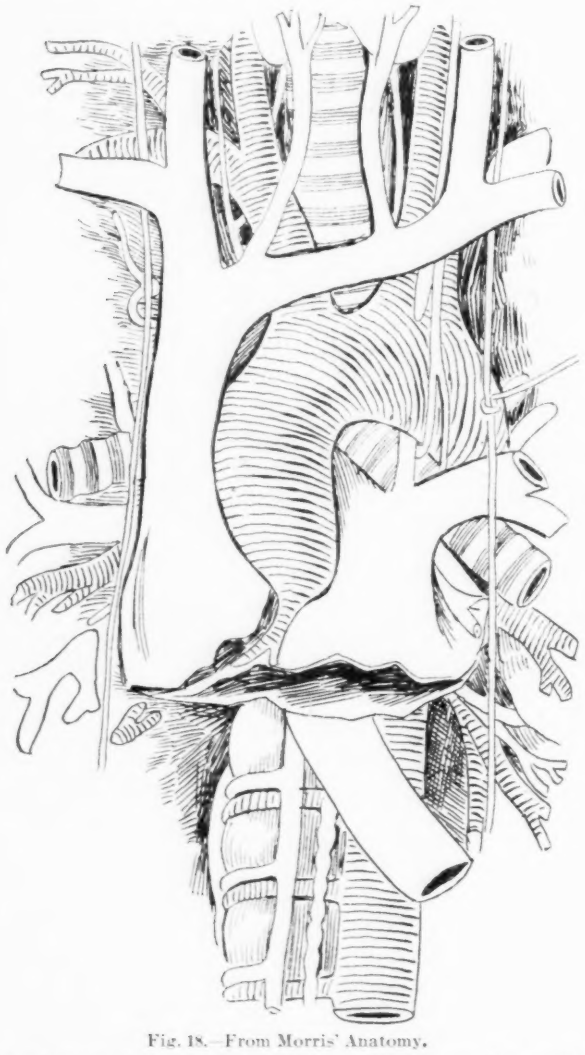


Fig. 18.—From Morris' Anatomy.

and what is the minimum of healthy lung tissue that will permit of that exchange? The tidal air in each respiratory act, in rest, is 114 to 196 c.cm., and 262 to 360 c.cm. during exercise.[26] The complemental air (the deepest inspiration) is 1722 to 1804 c.cm. (Hutchinson). The reserve air which can be expelled after an ordinary expiration is 1148 to 1804 c.cm. The residual air (mean) which remains in the lung after a forced expiration is 672 c.cm.[27] The vital capacity, quantity of air exchanged between the extremes of inhalation and exhalation, is 3558 c.cm. (mean for 1923 men).

[26] Hutchinson: Thorax, Todd's Cyc. of Anat. and Phys., Vol. iv, 1067.
[27] H. Davy: Researches Concerning Nitrous Oxid, London, 1800, p. 399

A comparison of these figures shows what a great reserve respiratory power we have, and explains with what ease respiration may be carried on with a large proportion of the respiratory tract functionless. Our extreme capacity is 3558 c.cm.; in an ordinary exchange it is from 114 c.cm. at rest, to 360 c.cm. in exercise, therefore the extreme capacity is equal to at least ten times the quantity of ordinary exchange. Pathologically we recognize that with one lung entirely disabled by pleuritic effusion and the capacity of the other lung greatly diminished by displacement of the mediastinal septum, the respiratory exchange is still ample to sustain life. These physiologic and pathologic facts prove that with our surgical technic sufficiently advanced an entire lung may be removed, as the body can dispense with it.

The respiratory metabolism does not appear to be affected by the frequency of respiration except, as Pflüger has shown, to the extent of the increased demand made by the simple action of the respiratory muscles. The mean carbon dioxid elimination at seven respirations per minute in fifteen minutes is 7.836 grams, while in the same individual at sixty respirations per minute it is 7.868 grams. The conclusion therefore is, that the respiratory activity is determined by the *needs* of the tissues and not by the amount of oxygen carried to the blood. The temperature of the inspired air in man is raised to that of the body before it reaches the smaller bronchi. The volume of expired air is 1/50 less than the inspired. The volume of oxygen in arterial blood in the dog was found to be 22 per cent. The volume of carbon dioxid in the blood varies greatly but is usually only about 1/5 or 30 volumes per cent. of what it is capable of holding when shaken in pure carbon dioxid, which is 150 volumes per cent. The proportion of oxygen in venous blood as compared with arterial blood is 5.43 per cent. in venous to 20.75 per cent. in arterial; carbon dioxid 61.8 per cent. in venous; 47.33 per cent. in arterial. The blood will not absorb an excess quantity of oxygen, no matter how great its excess in the air inhaled. The union is a loose chemic combination between the oxygen and certain constituents of the blood, principally the erythrocytes.[28] The hemoglobin in these erythrocytes is the absorbing element.[29] Nitrogen is merely held in solution. Carbon dioxid is held in chemic combination with the pigment of the red cells and the alkalies of the serum; and is also loosely dissolved in the blood. The proportion of loose to firm is as 2 to 3.5 (Prior). The alkalies of the blood are the most important constituents for holding in solution the carbon dioxid. The blood corpuscles contain about one-third of the total carbon dioxid held in the blood. The red cells contain 10 volumes and the white 2.5 volumes in 100 volumes of blood.[30]

*Causes of exchange of gases.*—At a temperature of 0 and a pressure of 760 mm.: The air inspired contains 20.96 volumes per cent. oxygen; the air expired contains 16.00 volumes per cent. oxygen; the air inspired contains 0.03 volumes per cent. carbon dioxid; the air expired contains 4.00 volumes per cent. carbon dioxid; the air inspired and expired contains about the same volume per cent. of nitrogen, 79.01.

Experiments have not accurately demonstrated the cause of the exchange of gases in the lung. It is the

[28] Liebig: Ann. d. Chem. u. Pharm., 1851, Bd. lxxix, s. 112.
[29] Pflüger: Arch. f. d. ges. Phys., Bonn, 1868, Bd. i, s. 73.
[30] Setchinow: Cent. f. med. Wissenschaft., Berlin, 1877.

accepted provisional theory that the exchange of gases between the blood and the air in the lungs is effected by physical and chemic means, the most important of which is diffusion.[31] The surface through which this diffusion takes place is 90 square meters, and through this there are diffused 300 c.c. of carbon dioxid and about the same quantity of oxygen per minute in ordinary respiration. The velocity of diffusion is proportionate to the density of the gas; therefore the velocity of carbon dioxid is about twenty times greater than that of oxygen (Zuntz). The question which concerns the surgeon in this relation is how much of the 90 square meters of this surface can be dispensed with suddenly and how much can be dispensed with slowly, the former by amputation or compression of the lung and the latter by disease processes? Clinical experience shows that one lung may be suddenly rendered entirely functionless without materially embarrassing respiration, as in pneumothorax and in hemathothorax, and as I have demonstrated experimentally and therapeutically by nitrogen gas injections into the pleura. We find pathologically that one entire lung and a considerable part of the other may be rendered functionless by diseased conditions before the apnea becomes marked and distressing. The difficulty in respiration in the latter stages of tuberculosis is due to two causes: 1, to the diminution of the pulmonary tissue capable of performing its function; and 2, the principal one, to the restriction of the respiratory motions of the chest produced by the adhesions and the consolidation and cicatrization of the diseased portion of the lung. This defective motion does not produce the free ingress and egress of air to the functionating portion and thus does not cause sufficient respiratory exchange.

The internal respiratory exchange, the exchange of gases from blood to tissue, is due to the action of the cells themselves, the tissues having great affinity for oxygen, which they even store up for future oxidation. They are constantly producing carbon dioxid, this can only continue for a limited period of time in the absence of oxygen. The various tensions of gases in the different fluids of the body bear an important relation to their exchange.

*(To be continued.)*

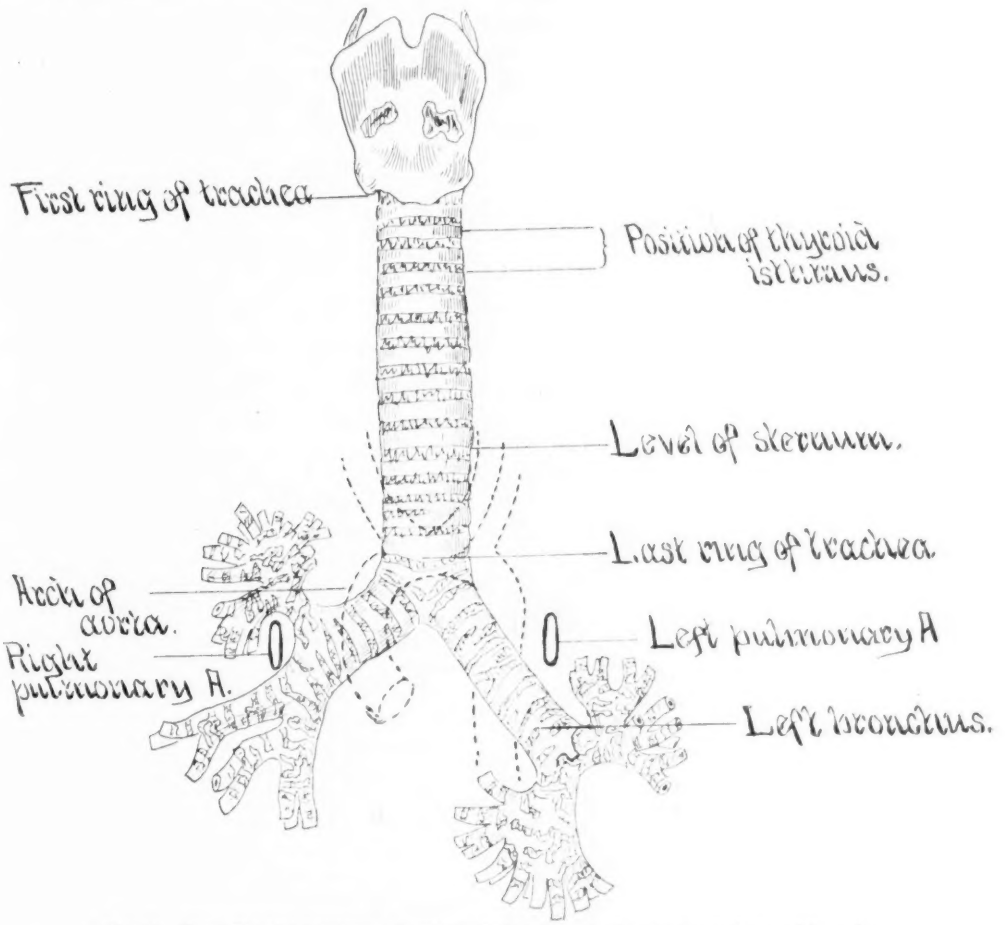



Fig. 19.—From Morris' Anatomy, showing relation of arch of aorta to trachea and bronchi.

[31] Text-book of Physiol., E. A. Schaefer, London, 1898.

## DIABETES MELLITUS AT THE MASSACHUSETTS GENERAL HOSPITAL FROM 1824 TO 1898. A STUDY OF THE MEDICAL RECORDS.

Presented to the Section on Practice of Medicine, at the Forty-ninth Annual Meeting of the American Medical Association held at Denver, Colo., June 7–10, 1898.

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BOSTON, MASS.

The examination of the records of the cases of saccharine diabetes treated in the wards of the Massachussetts General Hospital during the past seventy-four years was begun for the purpose of seeking evidence with regard to the pancreatic origin of this disease. (See *Yale Medical Journal*, 1898, iv, 275.) Since several hundred volumes were to be searched it seemed desirable to obtain at the same time information upon other points which might contribute to the

statistics of diabetes. Facts of interest in diagnosis and treatment were elicited as the study progressed and this paper is offered rather as a historical sketch of the progress of a disease drawn from the original records than as an attempt to advance in any way our knowledge of the subject. Since diabetes mellitus was first sharply differentiated from diabetes insipidus early in the present century, the hospital records may be considered to be nearly as old as is our knowledge of the disease in question.

During these seventy-four years the total number of cases of diabetes mellitus treated in the medical wards was 172, but of these, 9 were readmitted, making 181 separate entries. The following table shows the variation in the number of such patients during successive periods of years and their proportion to the total number of cases treated during the same periods.

| Period. | Total number of patients. | Number of cases of diabetes. | Per cent. |
|---|---|---|---|
| From 1824 to 1840 | 5,328 | 7 | .13 |
| From 1840 to 1855 | 6,136 | 16 | .26 |
| From 1855 to 1870 | 8,660 | 24 | .27 |
| From 1870 to 1885 | 11,690 | 39 | .33 |
| From 1885 to 1898 | 16,085 | 86 | .53 |

It appears from this table that within the past thirteen years as many cases of diabetes were admitted to the hospital as in the previous sixty-one years and the per cent. in the past thirteen years in proportion to the total number of hospital entries has increased fourfold over that of the first fifteen years. This fact is not due to any recent increase in the number of beds open to this class of patients, nor, presumably to any considerable excess in the frequency of this disease in the region from which the hospital receives its patients. Whatever may be its cause this occurrence is to be regarded as evidence of the wholesome tendency of diabetics to place themselves under careful medical supervision for such length of time as shall permit suitable observations to determine the severity and controllability of the disease, that the future conduct of the patient may accordingly be regulated.

Of the 172 cases, 127 (or disregarding fractions, 74 per cent.) were males and 45 (or 26 per cent.) were females. The oldest patient was 73 years of age and the youngest 5 years, the average age of 161 patients being 33.4 years. The average age among 40 female patients was 39.1 years, being higher than that in 121 males in whom it was 31.4 years. The following table represents the time of life at which the disease began.

| Age. | Number of cases. | Per cent. |
|---|---|---|
| From 0 to 10 years | 3 | 1.8 |
| From 10 to 20 years | 15 | 8.8 |
| From 20 to 30 years | 41 | 24.1 |
| From 30 to 40 years | 43 | 25.3 |
| From 40 to 50 years | 29 | 17.1 |
| From 50 to 60 years | 28 | 16.5 |
| From 60 to 70 years | 11 | 6.4 |

Diabetes thus is shown to be a disease predominantly affecting the middle third of life, though sparing neither the child of five nor the senior of seventy-three.

But one of the patients was a negro, a further illustration of the rarity of diabetes in this race, although Tyson (Practice of Medicine, 1896, 751) has met with several instances. Ninety-seven of the patients lived in the United States, and 83 claimed this country as their birthplace. Thirty-nine of the patients were born in Ireland, 11 in the British Provinces, 9 in England, 4 in Scotland, 7 in Germany, 2 in Sweden and 1 in Denmark. Forty-three of the patients were mechanics, 23 servants, 17 laborers and 13 farmers. Of merchants there were 5, and of clerks 7. There were 5 mariners and 4 teamsters. Although four of the patients were students there were but two professions represented, a clergyman and an artist being included among the entries. There were single or a few representatives of several other occupations, and conspicuous for its absence was that of liquor dealer.

In 42 cases the question of an inherited tendency to the disease was raised and this factor was stated to have been present in 10 patients and absent in 32. In one case the father died of possible diabetes and this disease was the cause of the death of a brother and his daughter. The brother of one diabetic patient fell upon the ice, striking his head and died of diabetes four days later. In three of the cases the symptoms of diabetes came on within a few weeks after severe injury.

One of these patients while working in a mill in July so strained his back by lifting a heavy weight that he was unable to accomplish much afterward on account of supposed weakness of the spine. In August the appetite became increased and in December he entered the hospital for treatment of diabetes. The second was buried in a sand bank three months before entrance and was taken out unconscious. Six weeks later thirst made its appearance as the first symptom indicative of the onset of the diabetes. The third fell fourteen feet and struck on the back of the head. He was unable to work for a fortnight. Very soon afterward he began to have great thirst, hunger, and frequent micturition of large quantities of urine. The disease began in a female patient one month after very hard work in caring for a sick sister. The possibility of contagion was entertained in the case of a servant whose mistress was suffering from a severe variety of diabetes.

Post-mortem examinations were made in 15 of the 47 fatal cases. As is usual in this disease no characteristic lesions were found. The liver generally was normal in appearance although sometimes enlarged and in one instance it was rather small. The kidneys as a rule were normal, were enlarged in one instance, congested and with fat drops in the cortex in another, enlarged and hemorrhagic in a third, enlarged and infiltrated with round cells in a fourth. The stomach was large in two cases and Brunner's glands were found "developed" in a case under the care of Henry I. Bowditch in 1848. The condition of the pancreas was not mentioned in seven of the cases. This gland was stated to be normal in five and small in three instances. In one of the three its tissues were not remarkable, in another there was a moderate infiltration of fat tissue around the head of the gland, and in the third the weight was recorded as an ounce and a half, the section showing a coarsely granular surface.

No attempt has been made to note the relative frequency and the severity of the various symptoms. Particular attention has been paid, however, to the records of the condition of the urine, since they furnish a valuable commentary of the progress of our knowledge concerning the methods of studying this secretion.

In the earliest volumes of the records especial importance was attached to the measurements of the

quantity of urine passed as compared with the quantity of liquids ingested, since formerly it was the belief that patients excreted more urine than they drank liquid. As an illustration the following table is copied from the record of a case.

TREATED IN 1861.

| Date. | Water drank—Pints. | Urine voided—Pints. | Specific gravity. |
|---|---|---|---|
| April 28 | 7½ | 23 | 1030 |
| April 29 | 4½ | 9+ | 1030 |
| April 30 | 4 | 11 | 1034 |
| May 1 | 3 | 8 | 1033 |
| May 2 | 4 | 9 | ? |
| May 3 | 4 | 10 | 1027 |
| May 4 | 4½ | 10 | 1025 |
| May 5 | About 4½ | 5 | 1025 |
| May 6 | About 6 | 10 | 1027 |
| May 7 | About 7½ | 11 | 1025 |
| May 8 | Out of house. | 6 | 1025 |
| May 9 | Out of house, 5. | 9 | 1030 |
| May 10 | Not known. | 6 | 1030 |
| May 11 | Not recorded, patient went frequently to stool. | .. | .. |
| May 12 | 6½ | 10 | 1033 |
| May 13 | 4½ | 10 | 1027 |
| May 14 | 7 | 11 | 1025 |
| May 15 | 7 | 10 | 1024 |
| May 16 | 6½ | 10 | .. |
| May 17 | 6, bread out. | 10 | 1027 |
| May 18 | 7 | 10 | 1030 |
| May 19 | 8 | 10 | 1030 |
| May 20 | 7 | 12 | 1030 |
| May 21 | 8½ | 14 | 1031 |
| May 22 | 8 | 18 | 1031 |
| May 23 | 7½ | 14 | 1033 |
| May 24 | 10 | 17 | 1031 |
| May 25 | 7, bread renewed. | 16 | .. |
| May 26 | 5½ | 16 | 1031 |
| May 27 | 14 | 15 | 1031 |
| May 28 | .. | 16 | 1033 |
| May 29 | 8 | 16 | 1034 |
| May 30 | .. | 10 | 1032 |
| May 31 | 6½ | 10 | 1032 |
| June 1 | 7½ | 12 | 1030 |
| June 2 | 6½ | 9 | 1031 |
| June 3 | 7 | 12 | 1030 |
| June 4 | 7½ | 9 | 1030 |
| June 5 | .. | 11 | 1030 |
| June 6 | 6½ | 12 | 1025 |
| June 7 | 7½ | 12 | 1026 |
| June 8 | .. | 10 | 1023 |
| June 9 | 9 | 14 | 1022 |
| June 10 | .. | 18 | 1022 |
| June 11 | 11 | 18 | 1020 |
| June 12 | 11 | 18 | 1020 |
| June 13 | Out of the house. | .. | 1021 |

It is noted, for instance, in Vol. i, that a patient with diabetes simplex from Dec. 2 to Dec. 11, 1821, ingested forty-five pints and seven gills, but excreted forty-five pints and four gills. The first patient who is recorded to have had diabetes mellitus entered the hospital in 1824, and during the first three days of his stay is credited with drinking twenty and one-half pints of fluid, and is charged with passing twenty-five pints of urine.

This doctrine of an excess of outgo of urine over income of fluids appears in 1847 in Watson's Practice of Physic (3d American Edition, p. 869) as a statement that the "quantity of urine secreted and voided is sometimes enormous, far more than could be supplied by the quantity of fluid taken as a drink."

Twenty years later, Harley in his work on diabetes says (p. 50), "diabetic patients generally pass more liquid than they take, about one-fifth or one-fourth more."

Lauder Brunton in 1879 (Reynold's System of Medicine, 1879, p. 387) opposes this view in the following words: "It has been said that the quantity of urine excreted by the patients is greater than that of their beverages, but this can hardly be the case, and the observations which seem to support this view have probably been made for too short a time, the apparent excess being most likely derived from water lodged in the system."

The difficulty of eradicating this erroneous idea is indicated by the fact that a recent graduate of the Harvard Medical School and of the Massachusetts General Hospital, seriously asserted that "it is perfectly well known that a person passes more urine than he drinks fluids." Such a view is based probably upon a misinterpretation of the physiologic teaching that more fluid is eliminated from the body in respiration and in secretion from the various glands than is taken in as liquid. In this connection it is interesting to note that a metabolism experiment in diabetes was made at the hospital in 1845. For it is then recorded that "in the last twenty-four hours ingesta were, solid 30 oz., liquid 54 oz. Total 84 oz. Egesta were, solid 8 oz., liquid 26 oz. Total 34 oz. Difference 50 oz."

The largest quantity of urine stated to have been voided in twenty-four hours was 576 ounces. The record of this patient is, "June 26, 1861, urinated thirty-six times; voided thirty-six pints. . . . It contained 3 per cent. of sugar, corresponding to 227 grains in one pint." Only six of 166 patients passed over 300 ounces in one day. The highest sp. gravity recorded is 1054, although repeatedly it was found above 1045. The highest percentage of sugar mentioned was 12.5 per cent. In many instances there was present between 9 and 10 per cent. of sugar.

The finding of sugar in the urine was determined in the first instance until 1851 by means of the taste. The physician in charge sometimes called upon the house physician to apply this test, although a positive statement to this effect is found only in 1844 and again in 1845. It is probable, however, that the patient was occasionally called upon to use this method, for in 1831 the statement appears, "on tasting, as directed to do by the physician . . . it was found sweet." This patient is credited also with the ability to make quantitative determinations in this way, for "he observed, however, that if he relapsed at any time, even in a very slight degree from a rigid animal diet, the urine was increased correspondingly in sweetness and quantity." In another instance it is stated that the urine is "less sweet after eggs." In general the patient at the time of entrance was able to make such positive statements as made apparent the condition of the urine. One "reports urine sometimes natural, at others sweet." It had the "sweetest taste," or was "sweetest to the taste." The urine had a "saccharine smell and taste," or presented a "sugary appearance on the shirt," or the "urine upon cloth leaves sticky and sparkling deposit." The intelligence of the lower animals sometimes aided in the diagnosis, for of one patient's urine it is stated that "flies gathered upon places moistened by it." Such everyday methods of diagnosis are still in use, for it is but recently that an office patient stated of her diabetic mother that her "clothes would rattle like starch, so sugary was the water, like brine on the floor."

These rude methods of testing the saccharine condition of the urine were supplemented in 1827 by evaporating the specimen. It is recorded "urine yesterday sixteen ounces, . . . seven ounces this morning, . . . sixteen being boiled about two remains (*sic*), resembling molasses, of saccharine smell and taste." In the following year, "urine seven pints, natural appearance, without sediment, not giving syrup on evaporation." It is stated also that eight ounces of urine yielded one ounce of syrup, and at the end of the record of the autopsy of a fatal case it appears that specimens of the saccharin matter and of the nitrate of urea prepared from the urine on dif-

ferent days by Dr. Chas. T. Jackson will be found in the cabinet of the Soc. for Medical Improvement, Nos. 566 and 567.

In 1833 we learn that "one quart of urine boiled to the consistency of thick molasses weighed two and one-half ounces. On the 12th the same quantity boiled as before weighed three ounces." This method was still in vogue in 1842 for "two ounces carefully evaporated gave about a drachm of clear extract of the color and consistency of treacle," and four years later the evaporating method still was employed.

In 1841 Trommer's test was made known (Annal. der Chemie und Pharmacie, 1841, xxxix, 360) and in 1842 the hospital records state that the "urine was unaffected by heat, nitric acid or aqua potassa." In this year the fermentation test also was first employed.

In 1846 the following letter from Dr. John Bacon, Jr., is entered in the records, and shows the results of his investigations for the purpose of determining the nature of the sugar to be found in diabetic urine. It seems worthy of reproduction as an illustration of the scientific methods employed even fifty years ago in the investigation of disease.

BOSTON, May 12, 1846.

DR. J. B. S. JACKSON.

*Dear Sir:*—The microscopic examination which I have made at your request, of the sugar from diabetic urine has afforded some results worthy of mention. The specimens of saccharine urine placed in my hands were from two diabetic patients now in the hospital. My first attempt was to obtain the sugar in a crystallized state by the evaporation of successive portions of the urine on slips of glass, both spontaneously and by the aid of a gentle heat. But the results obtained in this way were unsatisfactory from the difficulty with which this variety of sugar crystallizes, and the following process was substituted. The urine was evaporated over a salt water bath, to the consistence of a thick syrup, and drops of this, spread very thinly on slips of glass, were left to spontaneous evaporation. In the course of a few days the liquid disappeared, leaving on the glass little hemispherical grains of a white color (none of them as large as the head of a pin), either isolated or collected into mammillated crusts. With the urine of the male patient, Pettigrew, two or three days were sufficient for this purpose; that of the female patient, Gould, which appeared to contain less sugar in proportion to the other constituents, required more than a week's exposure.

The objects thus procured were prepared for the microscope by covering them with Canada balsam. Being now examined with moderate powers, each little grain resolved itself into a compact group of fibers radiating from a central point, many of their ends projected beyond the mass, but exhibited no distinct crystalline faces. This radiated structure, with a fine silky lustre, becomes distinctly visible to the naked eye in the larger grains, when they are covered with the balsam. The aid of the polarizing attachment to the microscope was now called in to decide the question as to the crystalline structure of the grains, when the rich and varied colors exhibited in the polarized light left no doubt of their really being groups of radiating acicular crystals. Among these masses of sugar there were noticed a few groups of more distinct crystal, not arranged like them in a stellate manner, and presenting entirely different appearances in polarized light. These are doubtless some of the saline constituents of the urine. As diabetic sugar is classed with that variety, to which from its abundance in the juice of ripe grapes the name of grape sugar is given, it became of interest to compare the appearance of the two under the microscope. Grape sugar is present in large quantity in honey, and is the variety formed from starch or from cane sugar by long continued boiling with dilute sulphuric acid. This variety is entirely distinct in its character from the common or cane sugar. A portion was prepared from honey and dissolved in alcohol, the solution, evaporated to a syrup and prepared for the microscope in the same manner as the diabetic urine, crystallized in groups of radiating fibers like the diabetic sugar, and presented similar appearances under the microscope, both with and without the polarizing attachment. An alcoholic solution of the diabetic sugar was also prepared, which crystallized in the same manner; a similar solution of cane sugar afforded no radiated groups, but distinct prismatic crystals which gave fine colored rings in polarized light. Under the microscope the urine of both patients (before evaporation) is seen to contain great numbers of colorless globules, often connected in chains or groups of half a dozen or more. I made a cursory examination for urea, by evaporating an ounce of the urine from each patient to one quarter and adding an equal volume of nitric acid. Pearly crystalline plates of nitrate of urea soon made their appearance in both, showing urea to be present in considerable amount, but the quantity of urine operated upon was too small to allow of a correct determination of the amount.

Yours respectfully, JOHN BACON, JR.

Although Moore's test had been made known in 1844, the first mention of its use in the hospital was in 1851, when the following record appears "glucose strongly marked on the addition of heat and liquor potassæ."

In 1852 Dr. Bacon determined, by what means it is not stated, that the per cent. of sugar in a given urine was 4 per cent. and two years later the fermentation method was employed for ascertaining the percentage.

The breath of diabetic patients first attracted attention in 1835, when a man entered the hospital with a note from his physician stating that it had a "peculiar sour smell." The observation made of this patient while in the hospital was of "a curious smell in breath which he has had since entrance." In three cases the breath is stated to have the odor of new milk. In 1846 it is noted of one of these "odor of breath considered by some of aromatic sweetness." Other expressions are in 1846 "odor of boiled milk;" in 1848 "ward distinctly tainted with smell peculiar to diabetes," "fruity odor;" in 1869 "sweet chloroform-like smell in neighborhood of patient's bed."

That the acetone odor of the breath then was attracting general attention is apparent in 1847 from the statement made in Watson's Practice (op. cit. p. 868) that "according to Dr. Prout the scent somewhat resembles that of sweet hay, but to my nose it is more like the smell of certain apples or rather of an apple chamber." He attributes the peculiar odor to the sugar. In 1866 in Harley on Diabetes (op. cit.) there is no mention of acetone or of diacetic acid, although Petters (*Prager Vierteljahrsch.* 1857, lv) several years before had attributed the coma of diabetes to the former agent.

Acetone was sought for in the breath of 19 cases, and in the urine of 24 cases. Its presence was indicated by the odor in 16 of the former, and by chemical tests in 14 of the latter series. It is interesting to note in connection with the result of recent investigations on the increase of acetone in consequence of a change to an absolute proteid diet, that the records state in 1894 that the "acetone smell has been more since disappearance of sugar than at any other time." Ten days later, however, without any change in diet there had been no return of sugar and no smell to the breath.

The ferric chlorid reaction, which, when positive, is considered generally to be evidence of the presence of diacetic acid, was sought for in 22 cases and found in 13. Albuminuria was present in the urine in 67 cases and was absent in 60 cases. Casts were found in 36 cases.

In four instances only is there a record of the examination of the feces. In 1844 a patient reported that his "food frequently passes away in lumps undigested" and fat is reported as absent in the stools of three patients.

In six cases there was tinnitus aurium and two patients had sciatica. Sexual power is noted as absent

in 9 cases and present in 4. The catamenia were present in 11 cases and absent in 9. Jaundice is mentioned to have occurred in five cases, and three of these patients died in the hospital, one of pneumonia and one of atrophied pancreas. Syphilis is stated to have existed in one case. Diabetes and myxedema coexisted in one patient and in another diabetic there was a tumor of the thyroid body. Three of the patients suffered from gangrene of the toe, a fourth had a gangrenous slough of the tissues of the leg, and a fifth died with a carbuncular-like inflammation of the thigh. Three of the patients had abscesses, one being of the hip, another of the wrist, both cases ending fatally. The third abscess was of the jaw, but the patient grew better. In one case there was a round ulcer of the toe, which improved under treatment.

The records afford some evidence concerning the duration of the disease, which in one case is stated to have existed for twelve years, while three patients had suffered but two weeks. Of the latter, one died, one was relieved and one unrelieved. The average duration was one year and a half.

The length of the illness in the fatal cases is indicated in the following table:

| DURATION. | NUMBER OF CASES. |
|---|---|
| From 0 to 1 year | 27 |
| From 1 to 2 years | 7 |
| From 2 to 3 years | 3 |
| From 3 to 4 years | 1 |
| From 4 to 5 years | 0 |
| From 5 to 6 years | 1 |
| From 6 to 7 years | 1 |
| Unknown | 7 |
| | 47 |

These cases, necessarily those of grave diabetes, thus ended fatally in nearly three-fourths of the number in which this point could be determined within one year after the disease made itself manifest, and within two years in nearly seven-eighths of the entire series. That diabetes may prove fatal at the end of a longer period of time, from 6 to 7 years as in one instance, is attributable to the well known fact that cases of mild diabetes may become suddenly severe, and that the symptoms of this disease may for a while disappear to return at a later period. An illustration of the latter condition, one which may be called recurrent diabetes, is to be found in the record of a patient who was in the hospital in 1862. In March, 1861, he suffered from cough with abundant yellow expectoration. In the latter part of the month the thirst increased and became excessive; the patient drank freely and passed large quantities of pale urine. The appetite failed and there was progressive debility. At the end of four months the quantity of urine became normal. The patient remained apparently well until the following February, when excessive thirst, polyuria and debility returned, and it was observed that the urine left a sticky and sparkling deposit on cloth. Another instance of recurrence is noted in 1866. Two years previous to the entrance of this patient he observed that an abnormally large quantity of urine was being passed in the twenty-four hours and that the thirst was excessive. These and other symptoms continued for three months and then disappeared without treatment. At the end of eighteen months, however, they returned, accompanied by general weakness and faintness. It is recorded that the house physician tasted the urine of this patient.

Of the 172 patients 47 or 27 per cent. died. The mortality among the 127 male patients was 39 or 30.7 per cent.; of the 45 female patients 8 died, a mortality of 17.7 per cent. The death rate among the males thus proved nearly twice as high as among the females. The following table illustrates the variation in the rate of mortality during successive periods of years.

| Period. | No. of cases. | No. of deaths. | Percentage of deaths. |
|---|---|---|---|
| From 1824 to 1840 | 7 | 1 | 14 |
| From 1840 to 1855 | 16 | 7 | 44 |
| From 1855 to 1870 | 24 | 5 | 20 |
| From 1870 to 1885 | 39 | 11 | 28 |
| From 1885 to 1898 | 86 | 23 | 27 |
| From 1824 to 1898 | 172 | 47 | 27 |

It has previously been remarked that from 1824 to 1885 there were treated 86 cases, the same number of cases as in the period from 1885 to 1898. It is certainly noteworthy that in each of these intervals there was an average of 27 per cent. of fatal cases, which again was the average mortality rate of the cases treated throughout the entire period from 1824 to to 1898. It might be thought from the inspection of this table that the method of treatment was superior from 1824 to 1840 and from 1855 to 1870 and that in the intervening years it was inferior. The information on this point later given affords no justification for such an inference.

Although it appears from the study of the records that most cases of grave diabetes die within a year or two of the onset of the disease and that 27 per cent. of all cases are fatal, some evidence has been obtained with regard to the prognosis in the individual case. Heredity appears to have less importance than is usually assigned to it. Of ten cases in which heredity may have been of etiologic significance three died, while of thirty-two cases in which heredity had no influence eight died. Thus the percentage of deaths was merely a trifle higher in those cases in which an inherited tendency to diabetes may have played a part than in those in which no such influence existed.

The time of life at which the patient suffers from the disease appears to be of greater prognostic importance, as may be inferred from the following table:

| Age. | No. of Cases. | Deaths. | Per cent. |
|---|---|---|---|
| From 0 to 10 years | 3 | 1 | 33 |
| From 10 to 20 years | 15 | 3 | 20 |
| From 20 to 30 years | 41 | 14 | 34 |
| From 30 to 40 years | 43 | 13 | 30 |
| From 40 to 50 years | 29 | 4 | 14 |
| From 50 to 60 years | 28 | 5 | 18 |
| From 60 to 70 years | 11 | 5 | 45 |
| | 170 | 45 | |

Thus about one-third of the patients suffering from diabetes during the first ten years of life and between the ages of 20 and 40 years die, and nearly one-half of the cases between 60 and 70 years prove fatal. The number of cases of diabetes in young children, however, is so small as not to be of much value in generalizing. The high rate of mortality after the age of 60 is due, possibly, only indirectly to the diabetes, the patients perhaps being unable to resist the effects of other disease, even if mild, in the presence of so grave an affection.

Thirty-eight of the 47 fatal cases died comatose, the coma lasting one day in 10 cases, two days in 14 and three days in 5 patients. In the remaining 9 cases the duration of the coma was not to be determined. The frequency of the coma in relation to the age of the patient is indicated in the following table:

| Age. | No. of cases. | Deaths from coma. | Per cent. |
|---|---|---|---|
| From 0 to 10 years | 3 | 1 | 33 |
| From 10 to 20 years | 15 | 3 | 20 |
| From 20 to 30 years | 41 | 12 | 29 |
| From 30 to 40 years | 43 | 9 | 21 |
| From 40 to 50 years | 29 | 3 | 10 |
| From 50 to 60 years | 28 | 4 | 14 |
| From 60 to 70 years | 11 | 3 | 27 |

The suddenness of its onset in certain instances is apparent from the record of a patient in 1828 who was able to leave the hospital for a few hours, at the end of which he became comatose and died. In 1846 another patient absented himself from the hospital without leave and became intoxicated; two days later he was comatose and died at the end of another two days. On the other hand, a third patient while in the hospital became intoxicated, had no coma and lived.

It is to be observed that of twenty fatal cases of diabetes there was present chronic nephritis in six, pulmonary tuberculosis and carbuncle or gangrene each in three, myocarditis in two and pneumonia, pleurisy, cerebral thrombosis, alveolar abscess and atrophied pancreas each in one. A patient with diabetes suffered at the same time from acute catarrhal cholangitis, acute rheumatism and chronic bronchitis.

The study of the records of these cases affords some evidence relating to the prognostic value of the presence of acetone and diacetic acid. Although the odor of acetone was present in the breath of 12 out of 14 fatal cases, that is, in more than 85 per cent., and in the urine of 6 out of 9 fatal cases, namely 66 per cent., in which the records show that attention was directed to this point, it was present also in the breath of 4 out of 5 non-fatal cases, 80 per cent., and in the urine of 8 out of 15 non-fatal cases, 53 per cent. It is evident from this comparison that the presence of an acetone odor in the breath or in the urine throws but little light upon the severity or mildness of the disease.

The ferric chlorid reaction was present in 6 out of 8 fatal cases and in one-half of the 14 non-fatal cases in which it was sought for. This evidence, so far as it goes, therefore, is in support of the view that this reaction has a somewhat serious significance.

It is interesting to note that in the earliest days of the hospital the improvement of the patient's condition was based upon an increase in weight.

It is to be remembered that John Rollo (Notes of a Diabetic Case, 1897) first ascertained that an animal diet not only decreased the quantity of urine, but also diminished the amount of sugar. The diet, therefore, from 1824 to 1840 was based evidently upon this discovery and the first diabetic patient in the hospital was fed on "animal food and bread in small quantities. Only one potato (*sic*) at dinner." Later molasses, beer and apples were excluded from his diet. In 1827 a patient's fare consisted of two eggs, at a meal, meat, milk, butter and salt. Such a diet, however, was not exclusive, for mention is made that vegetable food and sugar were not to be taken, but rice and milk porridge were allowed. Toast water and broth were permitted, and crackers were given instead of bread. Thirst was quenched with chamomile tea or balm tea, and lemons also served for this purpose.

The unlimited use of liquids was not permitted, for one patient was allowed only a "teacup of liquid at meals." Another was given, "balm tea as little as will suffice," and it is stated of a third that he "thinks he has not drank all his allowance."

The first treatment the first patient received was a warm bath, and as the quantity of urine appeared to be less after the bath had been taken it was ordered to be repeated every other day. Warm salt baths also were used.

The advantages of exercise were appreciated at an early period, for one patient in 1831 was advised to ride horseback, and another was recommended to take as much exercise as his strength would permit.

Alcohol was given as early as 1828, when the physician in charge ordered, "let her take some brandy and water, taking one teaspoonful of brandy in hot or cold water, repeating it once in 3 or 4 hours if the effects are grateful." There is nothing in the record to show that its action was displeasing to the patient. The recent investigations of von Noorden ("Die Zuckerkranheit und Ihre Behandlung," 1895, 146), show that this treatment has a sound scientific basis since one gram of alcohol is the equivalent of seven calories, while the same quantity of proteids and carbohydrates is equivalent only to four calories.

This patient was treated also with opium and "by error took following in A. M.

℞ Infus. Sennæ Comp., ʒiij."

On the next day he "was uncomfortable in head with some depression of spirits." During this patient's stay in the hospital he was ordered powdered rhubarb and the infusion of rhubarb and magnesia: a trial was made also of uva ursi and of the sodium and potassium tartrate.

During the first fifteen years the treatment in general consisted of opium, either alone or with camphor and aloes. Cathartics were used liberally, and frequent mention is made of rhubarb, aloes, colocynth, senna, calomel, magnesium sulphate, castor oil and croton oil. Enemata were employed freely, some of them being especially designated "active." One patient who complained of nausea promptly received a dose of ipecac.

Among other drugs in use during this period were quinin and dilute nitric acid, the decoction of sumac and powdered guiac.

Blisters and cupping often were used, and one patient "thinks opium and blisters have been followed by the greatest improvement." More severe counter-irritation was ordered sometimes, as appears from the record, "apply caustic issue on each side of the spine." In one case this application proved to be directly injurious.

During the period of high mortality, that is from 1840 to 1855, the following dietary is ordered: "Lean meat, with a small quantity of stale, dry or toasted bread, avoiding all fatty, farinaceous and saccharine articles. For drink, cold water and weak tea." The use of liquids continued to be restricted, although slippery elm tea now came into use. Alcohol was not given regularly, and blisters no longer were applied. Leeches appeared to serve in the place of the latter and of issues for it is recorded, "Leach (*sic*) bites now ulcerated."

Opium continued to be given, but not so largely as previous to 1840. Cathartics were prescribed with freedom, and the liberal use of calomel is suggested by the frequent records of spongy gums and myrrh mouth washes. Iron now was used in the form of the tincture of the chlorid or the carbonate. Other remedies employed were argentic nitrate, ammonium hydrosulphuret, ammonium carbonate, conium, hyoscyamus and valerian, aromatic sulphuric acid and

creosote. During this period the use of yeast was tried by McGregor (Watson's Practice, p. 872), who stated that it made the patients feel as if they were "on the eve of being blown up." A patient in the hospital was ordered to "take yeast 3ss. in milk *ter die*." This quantity was increased to an ounce daily and then was resumed and omitted at intervals during a month, the yeast being taken five-sixths of the time. The effect was not that mentioned by Watson, but a sense of constant nausea was the chief resulting complaint.

From 1855 to 1870 especial attention was paid to the selection of a suitable bread, and bran bread, stale bread, brown dyspepsia bread, toasted dyspepsia bread, ship biscuit and toasted ship bread were ordered. Butter, cabbage, cheese and greens were allowed, but shellfish and liver were excluded. Liquids at times were restricted, and cocoa was given somewhat frequently. Alcohol was ordered occasionally, and one patient, notwithstanding milk punch was prescribed *p. r. n.*, remained in the hospital but a single day, at the end of which he was discharged unrelieved. Opium was but little used, counter-irritants were discontinued and there was but little variety in the use of drugs. One patient received a half pint of iron rust water at dinner. To another in 1866 was given a half ounce of cod liver oil three times daily. As "she likes it and don't have enough," the dose was increased to three ounces three times daily. This maximum dose was reduced in consequence of the production of loose movements of the bowels.

From 1870 to 1885 gluten bread was used, but was discovered to contain 33 per cent. of starch. Patients were advised "to drink as little water as possible," but as much as four quarts of skim-milk were given daily. Opium and codeia were used frequently, but alcohol, blisters, baths and exercise were not advised as a part of the routine treatment. On the contrary, a large number of drugs were employed, including Fowler's solution, bromid of arsenic, antimony, bismuth, phosphate of zinc, phosphorus, bromid of potassium, iodid of potassium, sulphid of calcium, salicylate of sodium, hydrochloric acid, lactic acid, gallic acid, pilocarpin, chloral, ergot, pepsin, Wilbur's oil and Shaw's pill. One patient received what was called the glycerin treatment, instituted by Schultzen (Naunyn, "Der Diabetes Mellitus," 1898, 405). On the day after his admission he was given thirty-three ounces of glycerin and died comatose on the same day. The coma was accompanied by spasms, to relieve which ether was given, but the house physician apparently feared that the death might be attributed to the effects of the ether.

In the period since 1885, Soya bean bread has been added to the dietary, and fats are used with freedom. The use of water is frequently, by no means always, restricted, and the use of skim-milk gradually has lessened. Alcohol, baths and exercise, are not made matters of routine. Opium and codeia are more often used than before, and trials have been made with potassium citrate, lithium carbonate, jambul, salol, salicin, antipyrin and urethan. Saccharin occasionally is used. Up to this period comatose patients had been treated solely with stimulants and diuretics, and brandy, nitroglycerin and oxygen were given frequently at the onset of coma. The use of solutions of sodium chlorid or sodium bicarbonate in enema, subcutaneous injection or by transfusion was begun and eight patients were thus treated. Although these patients died, as had those otherwise treated, it appears from the records that in certain instances life was somewhat prolonged. The patient's mind usually became clearer after the administration of the saline, and one person was aroused to such a degree that he is recorded to have said, "Oh! doctor, I'm glad you did that: I have not felt so well for a long time."

The practical outcome of this examination of the records of cases of diabetes treated at the Massachusetts General Hospital during the past seventy-four years can be stated in a very few words. The average mortality of saccharin diabetes has not changed materially, for it was the same in the past thirteen years as in the previous sixty-one years. The dietetic restrictions have undergone no essential alteration in this time. Opium is the only drug which has been persistently used in the treatment throughout this entire period.

DISCUSSION.

Dr. WEST—I have been much interested in the résumé of the large number of cases referred to by the reader of the paper. There were several points that struck me during the reading of the paper which I do not wish to discuss so much as to make inquiry about. First in regard to race. I notice the doctor said that no cases occurred among the negro race (Dr. Joslin: one case reported.) The small proportion might be due to the small proportion of negroes in that country. So far as my observation goes, living as I do in a country where there is a large proportion of these people, I never saw a case of diabetes in the negro race.

I would like to inquire too about the statistics in regard to the occurrence of diabetes among the Hebrew race.

The cases of diabetes that I have had in my practice have occurred in persons who were fleshy.

In regard to diabetes occurring as a complication of gout I have found in my experience gout and diabetes frequently associated.

Another point that I would like to inquire about is the rapidity of the fatal results in the cases of the young. Diabetes pursues a rapid course in the young persons, more than in the older. I noticed that albuminuria was found in about 60 per cent. of cases and yet the autopsy failed to show any kidney lesion. That seems to me remarkable. I should like to inquire also in what proportion of the cases was diabetes of cerebral origin.

Dr. TYSON—There is only one point I can treat which relates to the question of diabetes occurring in negroes. About three years ago I gave a clinical lecture and I made the statement that I had never seen a case of diabetes in a negro. There happened to be present a negro physician who had a large practice among negroes, and in the course of a few days I had three negroes referred to me with this trouble. I think, therefore, it is not unlikely that diabetes is more common in the negro race than it is supposed to be. My experience at that particular time satisfied me as to that fact. I have been interested in diabetes occurring in young children. Many cases occur in young children, but I can not find an explanation why. Diabetes is much more eommon among the Hebrew race than among Christians. It is also a much more common disease in males than in women.

Dr. BOND—I would suggest that the Hebrew race probably have this disease more than any other people on account of their love of high living. It is a well known fact that they eat largely of such foods that are irritating more than any other class of people. They are given to parties, they congregate together and have frequent and irregular meals. I believe it is from that fact that they have this disease more than any other people.

Dr. STOCKTON of Buffalo—I rise to call attention to the historic value of the paper. I think this paper is a very useful illustration of the principle expounded this morning in the general address in medicine by Dr. Musser.

Dr. JOSLIN—In reading my paper much was necessarily omitted on account of lack of time. The printed article will contain answers to the preceding questions.

# THE USE OF IRON AND OPIUM IN BRIGHT'S DISEASE.

Presented to the Section on Practice of Medicine at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY JAMES TYSON, M.D.

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For some time I have been rather anxious for an opportunity to relieve myself on the subject of the administration of iron in the treatment of Bright's disease, the more especially as I feel somewhat responsible for the present, as I regard it vicious practice of indiscriminate prescription of this drug in the disease referred to: for I am one of those who in times past have taught that iron is a remedy indicated in almost every case of Bright's disease. Thus on page 138 of my book on Bright's Disease published 17 years ago, I say, "It may be laid down as a rule to which there are few exceptions, that the *continuous* use of some one of the preparations of iron is indicated," the word continuous being underscored in the original. Again on page 186, in speaking of the treatment of chronic interstitial nephritis, I say of drugs, "Iron is perhaps the most important and indispensable and may be given in the shape of the acetate or the well known Basham's mixture." I have learned since writing the above that there is a good deal of mischief done by iron in Bright's disease, and I am not sure that it would not have been better for many patients if the gallons of Basham's mixture which have been prescribed since Dickinson first suggested it over 25 years ago, had been poured into the street gutter rather than into the stomachs of the patients it was intended to benefit. It is an interesting fact confirming the statement already made that scarcely a patient ever comes to me in consultation or is sent from another physician who has not been taking Basham's mixture, and it is further confirmation that in a very large number of these cases it is given under the impression that it has some specific effect toward curing Bright's disease. It is needless to say that it was never suggested for any directly curative purpose, but simply as a remedy for the anemia which is so conspicuous a symptom in many cases and for this purpose it still is and always will be useful.

But not every case of Bright's disease is anemic, and as iron has no specific curative effect it is clearly not indicated in non-anemic cases. Nay more, it is often harmful. It is harmful by locking up secretion and checking elimination already restricted by the diminished functional activity of the kidney. The direct results of this are seen in headache and head-throbbing, associated with constipation and coated tongue to which the patients themselves often call attention and which appear much earlier in these cases than in persons who have integral kidneys. In such cases Basham's mixture or iron in any form may even precipitate uremic symptoms.

While anemia as determined by the appearance of the patient and more accurately by a blood count and hemoglobin measurement is the only indication for the use of iron, it is possible also to indicate in a general way the class of cases in which iron may or may not be useful. Thus it may be laid down as a rule to which there is almost no exception that iron is not indicated, and should not be prescribed in cases of acute Bright's disease. Iron is at best a remedy of slow operation so far as good effect is concerned, while it is rapid in producing its harmful influence whatever that may be. In acute Bright's disease there is not generally anemia and where there is, it is of secondary importance to more urgent symptoms. It is trespassing on nature therefore and embarrassing other more urgent treatment to give iron in acute nephritis. On the other hand, after the acute symptoms have passed away and convalescence sets in iron is often very useful.

A second class of cases in which iron is contraindicated and is more frequently harmful, is chronic interstitial nephritis. The association in this condition of more general total destruction of tubular epithelium with restricted elimination goes to show that it is not unlikely that in parenchymatous nephritis acute and chronic the renal cells are capable of a certain degree of function even though they be cloudy and swollen. At any rate it is in chronic interstitial nephritis that iron is more promptly and dangerously harmful than in any other form of Bright's disease. It does happen that in advanced stages of this affection there is sometimes extreme anemia and it would seem that under these circumstances it might be used. And under such circumstances if at all it may. But even in this, representing as it does, the last stages of the disease, in which a dilated heart is staggering under a load it can barely carry and in which a last straw may either cause it to stop beating or furnish the spark to ignite a fatal uremia the drug is of questionable value.

The form of Bright's disease in which iron is best borne is chronic parenchymatous nephritis. And as this is apt to be associated with more or less anemia it becomes a most valuable remedy in overcoming this symptom. Even here the doses given are usually needlessly large. I hold that wherever iron appears in the stools for whatever cause administered this unabsorbed portion is useless, and as it is this which acting as an astringent causes constipation it is not only wasted but harmful. My practice is to determine the proper dose by an examination of the stools and if these are decidedly blackened, I hold that I am giving too much. On the other hand a slight coloration may be permitted as indicating that a sufficient dose has been attained.

A further explanation of the general use of Basham's mixture is the very common impression that this preparation of iron is diuretic. I am inclined to believe that this is an error, or at any rate it is no more diuretic than the bulk of water which constitutes its menstruum. That some diuretic action may be expected from this source is rendered reasonable by the fact that Basham's mixture and in fact any preparation of iron is commonly freely diluted. The ingestion and absorption of so large a bulk of water may be reasonably expected, by the increased intra-vascular pressure which it excites, to produce increased secretion of urine.

As to the second of the drugs mentioned in the title of my paper, I believe the dangers of its use are more generally appreciated, and yet I am confident that many a life is sacrificed by the injudicious use of opium. I believe, therefore, that a word of warning can not be out of place. That we should endeavor to understand the conditions contraindicating the use of opium in Bright's disease is the more important, because there are certain states in which opium has been held to be of signal advantage, namely, in the treatment of uremic convulsions. I regard the evidence in favor of the efficiency of hypodermic

injections of morphin in certain cases of uremic convulsions as altogether too conclusive to admit of denial, yet I am certain that death has not infrequently been precipitated by it, and when I tell you I have seen a fatal uremia induced by a couple of teaspoonsful of paregoric, I trust I convey to you an adequate idea of the dangers of this drug.

First, perhaps, it is desirable to know the conditions in which opium is positively contraindicated. First and foremost is chronic interstitial nephritis. I regard the use of morphin in this form of Bright's disease as harmful in the extreme, and the hypodermic injection of morphin in such cases should be positively forbidden. It is this form of disease in which I have known so many cases launched upon a last sleep whence they have never awakened. I do not think it possible to be too emphatic on this subject, and I desire to raise my voice against it in the strongest terms. The beginning of the evil result is a diminution and finally a suppression of urine, followed by coma and death. It is especially in old persons in whom chronic interstitial nephritis is unsuspected in which this accident occurs. Hence too, the importance of examining the urine of old persons before administering opium.

After chronic interstitial nephritis come cases of so-called surgical kidney or suppurating kidney due to stone in the bladder, tuberculosis of the kidney and the like. The danger in these cases depends a good deal on the degree of kidney substance destroyed. It is well known that operation alone in some of these cases becomes the exciting cause of graver changes which terminate in uremia, as seen in the well-known case of the Emperor Napoleon III., while I am confident the use of opium has precipitated many more. Fortunatety, the modern practice of surgeons in repudiating almost entirely the use of opium after operations, has served to diminish largely the number of accidents from this cause, while another saving clause exists in the fact that while the kidney is often extensively destroyed, in many cases there remain considerable areas in which the kidney substance is sound. This is in marked contrast to the state of affairs in chronic interstitial nephritis, where the invasion is uniform.

Finally, the more extensive the destruction of the kidney, whatever the form of the disease, the greater the danger from the use of opium. Therefore, chronicity becomes in a general way a measure of the danger risked. I say, in a measure, because the progress in different cases varies so much that duration is not always a measure of the destruction of the kidney. On this account, chronicity has its limitations as a sign of danger when we have not chronic interstitial nephritis. On the other hand, it becomes more important to insist on great caution in the use of opium in every case of renal disease. In chronic cases of the more doubtful kind, the way may be felt by means of very small doses gradually increased, where opium is indicated for any cause.

A corollary following from the last rule brings us to those cases in which the use of opium is least harmful and in many conditions most happy in its influences. These are cases of acute nephritis and of puerperal nephritis, and the condition in which it is often useful is the uremic convulsion in such cases. The use of opium in the treatment of uremic convulsions in acute Bright's disease is intimately associated with the name of Alfred Loomis, and his original position has been much misrepresented. It was only in acute Bright's disease, as Dr. Loomis himself has told me, that he recommended hypodermic injections of morphin, while others claiming to follow him have advised it for convulsions in all stages. I believe Dr. Loomis' original position is justified and that we may still use with signal advantage this mode of treatment. The only risk lies in cases in which the diagnosis is doubtful, and the treatment should not be applied without careful investigation—indeed, dispensed with except in cases of absolute certainty.

The treatment of puerperal convulsions by the hypodermic injection of morphin is justified on the ground that most of these patients represent cases of acute nephritis. But here even more than in the cases just described, great caution should be used, for not every case of puerperal convulsions is a case of acute Bright's disease, and now and then it happens that death is precipitated because such a case happens to be a chronic one and falls in the category of those in which the use of opium is dangerous.

It will appear from what has been said that diagnosis is the safety gauge by which danger is to be averted. First of all, we should be certain that cases of other disease requiring the use of morphin are not complicated with chronic Bright's disease. Cases in which I have known accident to happen have been simple diarrhea calling for the use of opium and violently painful conditions, such as angina pectoris. In no symptom of Bright's disease itself can opium be of use except in convulsions, and for this symptom only in cases of acute nephritis whether originating from the ordinary causes or pregnancy, and so rarely in chronic parenchymatous nephritis that it may be practically ignored. Finally, under no circumstances in chronic interstitial nephritis should opium be used.

In conclusion, I beg to be understood that I do not repudiate altogether iron and opium in Bright's disease, but desire to limit them to a rational and safe use.

DISCUSSION.

Dr. H. A. West of Galveston, Texas—I wish to speak of one point brought out by the writer, that acute Bright's disease is not attended by anemia and therefore that iron is contraindicated in this disease. I believe that many cases of acute Bright's disease are attended by anemia and therefore are much benefited by iron; it is absolutely beneficial when anemia exists.

Another point I wish to make mention of is in regard to the use of opium in the treatment of certain forms of uremic convulsions. My experience has been to find that a hypodermic of morphin is the only means of controlling effectually the convulsions which accompany such diseases as diphtheria. Chloroform, hydrate of chloral, bromids, etc., fail to control severe uremic convulsions, especially of the puerperal kind, but they are controlled by heroic doses of morphin and atropin. It has been my experience to see many such cases. There are cases of uremic convulsions, not of chronic Bright's disease, where lives can be saved by heroic administration of morphin.

Dr. Stockton of Buffalo—Dr. Tyson has brought out many points for discussion. In the first place I will express my views as to the use of opium in Bright's disease. I am glad he has stated just what he has. There are instances in which the hypodermic injection of morphin will save lives when no other remedy is available. As to the use of iron I do not altogether agree with him. I think with the gentleman that last spoke, that if anemia is present iron is beneficial. I do not think that Dr. Tyson will deny that statement. Anemia occurs rapidly and should be combated. Another point relates to the amount of the iron to be given to combat the anemia. In my experience, if we depend upon a small amount of iron there is not nearly so much absorbed as there would be if a larger amount was used.

Dr. Brown of Cincinnati, Ohio—Every particular form of

Bright's disease is one in which there is some danger in using iron and opium.

Dr. VAN HORN of Illinois—I am much pleased with the paper. In puerperal convulsions, I think if the gentlemen will use the lancet the condition will be relieved quickly and surely and they will have no occasion to use morphin or the bromids.

Dr. TYSON—Some of the speakers have not exactly appreciated the position I take. I do not deny that anemia does occur in acute Bright's disease. The point I take is that when anemia occurs early in Bright's disease, it is a secondary symptom. The more urgent symptoms are those which require treatment. Relief should be first directed to the scanty or suppressed urine and to the dropsy. I admit that anemia supervenes rapidly in acute Bright's disease, and here we should use iron, but only after the dangers are gone. The question naturally arises in acute Bright's disease where the acute form ends and the other begins.

In regard to uremic convulsions, I accept the statement that this is a form of convulsion that a hypodermic of morphin will often benefit. The same is true also of the convulsions occurring in parenchymatous nephritis. I admit, too, that after other measures have been used, and there is a necessity of doing something more, then opium may be permitted. But I am certain that convulsions have been precipitated by the use of that drug, especially when it is associated with atropin, as both drugs co-operate to produce suppression of urine. I agree with Dr. Van Horn in regard to the use of the lancet.

Chronic interstitial nephritis happens to be the form of disease in which these two drugs are contraindicated, simply because in this form there is restricted elimination; the danger is from further restriction. Destruction of the cells is more extensive in this form than in parenchymatous nephritis.

## THE COURSE AND MANAGEMENT OF COMPLICATING MYOCARDITIS.

Presented to the Section on Practice of Medicine, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY LOUIS FAUGÈRES BISHOP, A.M., M.D.
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In the course of the practice of medicine, as diseases and conditions are unconsciously classified, ideas gradually develop themselves that are not easy to formulate into the language of exact scientific observation. One of these impressions has been that in the debility following severe diseases, there is some more definite underlying condition than is usually formulated. The explanation alone of an exhausted and deteriorated nervous system is not sufficient. The attention is drawn to the heart muscle, and clinical observation, confirmed by the pathologic observations of others, has led to the belief that complicating myocarditis is an important factor in the course and progress of many conditions. The signs of disease of the heart muscle should therefore be studied with care. In acute diseases and wasting diseases, whatever may be their nature, there come times when it seems evident that the heart has participated in the debility and degeneration that is visible in the other tissues of the body. So we find in the milder cases a condition of simple weakness of contraction, in the more severe, signs more suggestive of myocarditis, namely irregularity in force and rhythm. When after an acute disease, or in the course of a chronic affection these signs are noted it becomes important to interpret their meaning and study their indications.

Our conception of the condition under consideration is an inflammatory state of the myocardium following acute diseases, occurring in the course of chronic wasting disease, or beginning as an extension of inflammation from an endocarditis, or a pericarditis. It is not proposed to consider conditions secondary to diseases of the coronary arteries or excessive hypertrophy. Our subject does not demand an extended reference to pathology. A form may occasionally originate in an acute interstitial myocarditis, but more frequently it is a parenchymatous degeneration. Dr. Osler remarks that it is probably the effect of a toxic agent, and that there is no definite relation between it and high temperature.

Every one is familiar with the appearance of the heart muscle in a patient dead from an acute prolonged illness. It differs in appearance from the heart of a person who has been killed by accident while in good health. In the former the muscle is pale and grayish looking, while in the latter it is firm and of healthy color. Probably in many diseases there is this low grade of inflammation that is not more than a slight degeneration.

It is not easy to be sure that a true myocarditis underlies any particular symptoms, but there are some that are of more importance than others. These are relative feebleness of impulse, especially under the stimulus of slight exercise, disturbances of rhythm and undue rapidity, following the resumption of standing position by a person most of the time recumbent. Such signs with dyspnea and prostration complete the picture of complicating myocarditis. Cardiac murmurs may, or may not, be present.

It has seemed to me that arhythmia in patients who had not previously shown this symptom is specially suggestive.

Dr. Jacobi says in his book on "Therapeutics of Infancy and Childhood," "We are beginning to become more and more aware of the frequency of affections of the heart muscle. Myocarditis in a chronic, sub-acute and acute form is of very frequent occurrence. In or after every case of typhoid fever, scarlatina, diphtheria or smallpox, we must prepare to be overtaken by some cardiac disease, either interstitial myocarditis or parenchymatous degeneration. Rest in bed or on a lounge (the former is better), will act as a preventive. It ought to be continued for weeks in almost every case. Like paralysis, subsequent upon infectious diseases, which develop after weeks, heart disease may occur from the same cause, partly as a subsequence of actual primary alterations, partly from nervous exhaustion. So long as the pulse becomes more rapid on exertion, or on getting out of bed, absolute rest is the best remedy and safeguard. In these cases, it is not always possible to distinguish between functional debility and actual disease."

Dr. Jacobi again remarks in the course of his book. "Though myocarditis, both acute and chronic, is by no means so frequent in the child as in the adult, it is nevertheless not infrequent. It is indeed remarkable to observe how often it is not diagnosed, or how little its occurrence is appreciated."

Myocarditis must always be feared when there are signs of impaired heart action, especially feebleness and irregularity of force and rhythm, that the underlying condition is disease of the heart muscle. These cases are too often carelessly diagnosed as general debility, or as instances of disturbed cardiac innervation. It is important that the real condition should be recognized because the treatment may otherwise be prejudicial. Stimulants directed to the heart itself are certainly philosophically contra-indicated. We might whip a lazy horse, or we might improve the behavior of a nervous horse by discipline, but a sick horse should always be rested and fed. So in the case of a heart that is feeble and behaving badly on account of myocarditis following a severe disease, muscle stimulants should be avoided.

Especially is the care of the heart muscle important in those cases of acute infectious diseases in which a valve lesion has unfortunately been developed by complicating endocarditis. In severe endocarditis myocarditis also probably exists, so that there is a double call upon the forces, as the heart must not only regain its normal power, but also learn to do greater work to make up for the lesion in the valve. Particularly is it important for these patients to follow a long and strict regimen, avoiding indiscretions of diet, sudden exertions and dissipation of all kinds.

The treatment of degeneration of the heart fiber when that is far advanced is a difficult problem. Indeed, when on account of the evidence of well-marked symptoms we can say definitely that such a process is going on, it is often too late to accomplish a great deal. The hopeful cases, and those which it is especially desired to call to the attention at this time, are those of complicating myocarditis, met with as an accompaniment of acute diseases, and to urge the care of this condition during the course of the disease, and during convalescence, so that ultimately the heart may regain its true tone. Instances of weak heart following acute disease are not wanting in any one's experience.

One of the dangers to the person suffering from myocarditis is the possible result of sudden over-exertion, causing an acute dilatation of the heart from which recovery is not easy. The proper regulation of the muscular activity of the patient is therefore of the utmost importance. Exercise undertaken to improve the general bodily nutrition, and that of the heart muscle in particular, should be light, slow and systematic. Next to exercise comes diet. Food should be concentrated so that the nourishment is administered in small volume, leading to an easy performance of the functions of the stomach without the tendency to distension, such as may mechanically embarrass the function of the heart and lungs. With the principle of small volume of food, much latitude as to variety may be permitted. The use of alcohol, without its abuse, in cardiac cases is very difficult. Probably a small quantity with meals is not harmful. But any excess is always followed by injury. The use of tea and coffee is a good deal a matter of experience with particular patients, but the extreme frequency of cardiac symptoms produced in persons with normal hearts by tea, and the fact that both tea and coffee are recognized as cardiac stimulants, should make us take the stand with our patients that these being cardiac drugs should be controlled by their physician. The use of tobacco is better discontinued. Often enough patients with defective hearts recognize themselves the discomfort, or rather the lack of satisfaction in the use of tobacco and spontaneously abandon it. But others have become habituated to its use so that the effects are not obvious, still these can be taught that the effect of tobacco will finally prejudice their future.

As the heart can not be treated directly, we must rely much upon the possible auxiliaries to the cardiac propulsive effort. It is unlikely that the heart alone, even in health, would be able under every circumstance to carry on the circulation. To imitate in inanimate material, a system of tubes and valves, such as the circulatory system of the human body, would be impossible, but if such a structure were possible it would not operate. The slightest defect would cause serious interruption of the current. In the circulation in the animal body there is provision made for enlargement of vessels here and contraction there so that the size of the tubes are always as required for the blood current. A demand for a larger amount of blood determines an enlarged blood vessel. Of course the heart supplies the main impulse to the blood, but the resiliency of the blood vessels, and their contraction and expansion under many varying conditions, must be important factors in the circulation. Taking advantage of this in cases of insufficient systole, much can be done to assist the circulation. This is notably accomplished by judicious exercise, stimulating baths and massage. Nor is the benefit of pleasant diversion in improving the nervous tone to be neglected.

Thus we see that in the course of many acute infectious diseases the heart muscle becomes affected by changes of an inflammatory or degenerative nature. Usually this is a part of a general condition affecting all the muscles of the body. But the heart muscle is of so much more importance, and the course and progress of the myocarditis bears such a vital relation to the well being of the patient it names the condition. The picture presented by the convalescent from an acute disease, who has escaped with a healthy heart, is very different from the one who has suffered from degeneration of the heart muscle. The former regains health and strength rapidly; the pulse becomes strong, the color returns, and the patient is soon in good health again. The patient with complicating myocarditis lingers along in a condition of semi-invalidism. The disease from which he originally suffered has entirely disappeared. There is apparently no reason that he should not recover strength and health, but the heart for a long time remains weak, unless its state be recognized and particular measures be employed to restore its integrity. This chronic complicating myocarditis explains symptoms so often witnessed after diphtheria, grippe, scarlet fever, and other diseases characterized by a violent infection.

30 West Thirty-sixth Street.

## THE CAUSES OF THE INCONSTANCY OF MITRAL REGURGITANT MURMURS.

Presented to the Section on Practice of Medicine at the Forty-ninth Annual Meeting of the American Medical Association held at Denver, Colo., June 7-10, 1898.

BY J. N. HALL, M.D.

DENVER.

Inconstancy is much more frequently a characteristic of regurgitant murmurs at the auriculo-ventricular orifices of the heart than of any other cardiac murmurs. We propose to study the reasons for this inconstancy, particularly as affecting the mitral valve, although much that we say applies equally well to the tricuspid. We shall first look briefly into the character and mode of production of the other murmurs. At the arterial orifices we may have direct murmurs from anemia, or infinitely less often, from obstruction in some form; and regurgitant ones from *a*, damage to the leaflets of the valves, or *b*, stretching of the ring supporting them. All of these are practically constant excepting the direct ones of anemic origin, which disappear under the use of iron in many cases.

Presystolic murmurs originate from narrowing of the auriculo-ventricular orifices, and are, practically, constant, excepting that weakening of the auricular wall may lower the force of the blood current to such

an extent as to render the vibrations inaudible. This phenomenon probably occurs in most cases of this nature after interruption of compensation. Leaving out of consideration the anemic murmurs, the murmurs we have just considered depend commonly upon conditions of the valve segments or the orifices brought about by endocarditis or atheromatous processes, and not subject to rapid changes either from medication or changes in blood pressure. As regards regurgitant murmurs at the auriculo-ventricular orifices the matter stands very differently, chiefly owing to the different mechanical conditions entering into the problem. Mitral systolic murmurs are frequently hemic in character, and these are subject to frequent variation from changes in the condition of the blood, as are hemic murmurs elsewhere. It is especially common to see them disappear under the use of iron. I believe that very soft, slightly musical systolic murmurs at the apex in children are most frequently hemic in nature. We should note that it is probable that certain apical murmurs in severe anemia are really regurgitant in nature, and yet disappear under treatment, for the weakness of the myocardium from insufficient nourishment in such cases may give rise to temporary insufficiency, the weakened papillary muscle failing to draw the valve-segments accurately together. We should mention here those murmurs heard in certain phases of respiration only, and yet synchronous with the apex-beat, only to dismiss them, since they do not come properly within the scope of this paper, not originating within the heart.

The fact that the heart is hinged upon the great vessels at its base, and therefore may be more easily displaced from the chest wall at its apical portion than at its basic by changes in posture, intervention of the lung, effusions or tumors, constitutes a further reason for the inconstancy of certain mitral murmurs because the source of the abnormal sound is easily pushed back from the chest wall by the causes mentioned. Although the vibrations still exist, they may not reach the chest wall under these circumstances.

The transmissibility of a murmur is so obviously dependent upon the force of the blood current that a change in its area of transmission is to be expected with change in power of the heart muscle. Cammann formerly stated that the existence of mitral leakage was established only by hearing the systolic murmurs transmitted to the back. This is obviously incorrect, for cases are common in which, during established compensation, the murmur is to be heard in the back, while it disappears with failure of this process, even to reappear after a temporary restoration of heart-power. Although the disappearance of the murmur from lessening of the force of the blood current is perhaps more strikingly seen in connection with mitral stenosis than with mitral leakage, the basic murmurs are less liable to such change than either of these. An apical systolic murmur occassionally replaces suddenly the presystolic murmurs of stenosis, owing to rupture of the stenotic valve. We need only mention this rare phenomenon.

Above all the causes thus far mentioned, however, is the peculiar structure of the auriculo-ventricular orifices, to which we must look for the explanation of the inconstancy of many systolic murmurs. The relatively large size of the ring, its comparatively easy dilatability, the presence of papillary muscles assisting in the closure of the orifice, and above all the attachment of these papillary muscles to the easily dilatable ventricular walls, offer abundant opportunities for leakage at the orifice and the consequent development of abnormal sounds. We should not, therefore, be surprised at the comparative frequency of occurrence of the murmurs in question. Although the valve-segments be perfect, we may readily see that leakage may occur, *a*, from dilatation of the ring to such an extent that the valves can no longer cover the opening; *b*, from stretching of the papillary muscles or loss of their contractile power, as from degeneration of their muscular tissue, so that the valve-segments are pushed too far into the auricle to meet accurately; *c*, from contraction of these muscles and of their chordæ tendineæ from endocarditic changes, so that the valves are unable to meet together; *d*, from a retraction into the ventricle of the leaflets of the valve from dilatation of the cavity, this serving to increase the distance between the point of origin of the muscle and the normal meeting place of the leaflets of the valve. Thus, although ring, leaflets and papillary muscles be normal, leakage occurs.

As all the conditions herein specified are subject to change, in some cases, as for example the last one quoted, to very rapid change, we need not be surprised at the great variations to be found in the physical signs in such cases. Drugs have vastly more influence in producing such changes than, for instance, at the aortic orifice, where the mechanical problem of closing the opening is much simpler. Thus an improvement in the tonicity and contractile power of the myocardium from the administration of digitalis may cause a leakage to disappear, as I have repeatedly observed, by its effect in abolishing the dilatation of the left ventricle, thus bringing the walls of the cavity, where are attached the papillary muscles, near enough to the normal position to permit of efficient closure of the valve segments.

Roy and Adami believe that strophanthus acts particularly upon the papillary muscle In leakage due to fault of this structure, an increase in the contractile power from the drug mentioned may possibly cause the murmur to disappear. The yielding of the ring is greater under conditions of increased blood pressure, but a murmur present from this cause alone is likely to be fairly constant because of the lack of elasticity in the structures composing the ring, and to consequent inability to regain its previous condition.

We know that the advance of a stenotic process at the mitral orifice lessens the gravity of a concomitant regurgitation by diminishing the size of the orifice. It is probably possible that a regurgitant murmur may disappear for a time by such a process. The most constant murmurs are probably those originating from insufficiency due to endocarditic defect in the leaflets, or to shortening of the chordæ tendineæ by the same process. Such murmurs are probably constant excepting as they fail from great lowering of the blood tension, although they may fail of transmission to the surface because of the intervention of effusions, or otherwise.

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**Chloroform Treatment of Yellow Fever.**—The National Academy of Medicine at Rio Janeiro is much interested in a new treatment for yellow fever proposed by Dr. Erico Coelho, which he has used with great success in his private and hospital practice. It consists merely in the inhalation of chloroform for hours during the early stages of the disease.—*O Brazil Medico*, May 8.

# TUBERCULOSIS AND ITS TREATMENT BY THE LATER METHODS.

SUBJECT ILLUSTRATED BY TWELVE CLINICAL CASES.

Presented to the Section on Practice of Medicine at the Forty ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY A. G. DEARDOFF, M.D.
SAN FRANCISCO, CAL.

I wish to add my experience in the use of one of the later remedies in arresting, and in the earlier stages, of curing tuberculosis. There are many new remedies used in tubercular troubles which prolong life and frequently cure that only a few years ago were unknown in the treatment of this dread disease which, as all medical men know, causes more death and distress in the human family than any other one trouble. I condemn none of these new remedies, but to the best of my ability, have investigated several, and the one that appeals to my better judgment is Dr. Paul Paquin's Anti-tubercular Serum and Anti-streptococcus Serum. The use of this serum in my own practice has convinced me that it is good. Revolutions come in medicine as in other things. A remedy will have a wide notoriety for a time by advertising, etc., but unless it has merit, it is soon thrown aside. To see a remedy grow continually in favor as this serum has, is a good proof of its reliability.

Jenner, many years ago, by his investigations, gave to mankind a virus that stopped the ravages of smallpox, and the terror of this disease is gone and it is almost totally eradicated from the earth and kept in absolute subjection.

Diphtheria is now controlled, and many cases cured by the anti-toxin serum. Many cities now have depots with this serum under the management of their boards of health. It undoubtedly has saved many lives, and physicians feel that they have a reliable remedy for this great enemy of childhood.

On the same line of reasoning we have the anti-tubercular serum, made from the blood of the horse, for tubercular troubles. Instead of this serum losing ground as many other treatments have done, it seems to be gradually gaining in popularity. By the use of the microscope the investigations of so many along the line of tubercular diseases, it is to be hoped that before long we will have on this same line of reasoning a remedy we can absolutely rely on, as we do now on the smallpox virus and the antitoxin for diphtheria. I have reason to believe such a time is approaching, and this would relieve the human family of another of its destroyers and greatest enemies.

While the cases I report are not numerous, my experience with these and others proves to me that there is something in this treatment well worth investigating. I must insist, however, that if a physician uses this serum on a patient, it shall be used regularly and continuously and be under the supervision of the physician. For using it a week or a month, then tiring of it, will simply bring reproach on the remedy and no permanent good to the patient. Intestinal antiseptics such as guaiacol, sulpho-carb. zinc, creosote, sat. sol. sod. borate, or any other good intestinal antiseptic should be used internally. Borolyptol, listerin and other antiseptics sprayed into the mouth and fauces as the physician thinks necessary. Good food, fresh air, all these favorable conditions must be recognized and used in connection with the serum. Some will say, tuberculosis will improve under this treatment without the serum; perhaps improve, but not cure.

When a case comes to us with night sweats, hectic fever, temperature 101 to 103 evenings, pulse 100 to 120, patient fast losing flesh, no appetite, profuse expectoration or a dry, irritable cough, and on auscultation and percussion undoubted signs of tubercular disease, and all these symptoms confirmed by the microscope, we know what these conditions mean.

When we begin with this serum and in one week the night sweats are lessened or entirely gone, better sleep, appetite improving, and in one or two months a gain of five, eight or fifteen pounds, we then *know* some great change has been wrought in the system. I have had many such results in relieving cases. The microscope was used in every case by a competent bacteriologist to confirm the diagnosis made by the physical examination.

*Case 1.—First stage.*—In March, 1897, I began treating young C., aged 11 years. His mother had died of phthisis one month before. He had been ill for three months. Mornings, had profuse expectoration full of tubercular germs, as shown by the microscope. Hectic flush, loss of appetite, and fever at night. I treated him forty days, and had the satisfaction of seeing him restored to health, with a gain of eight pounds in weight and a growth of almost an inch in height in four months. A complete cessation of cough, and on auscultation and percussion, no abnormal sounds could be heard. Have examined him every month since, and he seems perfectly well. Nearly a year has passed and no return of symptoms. No medicine was used in this case except an occasional dose of mild hydrarg. chlorid as a hepatic stimulant.

*Case 2.—First Stage.*—Mrs. P., aged about 40, in May of 1897 applied to me for relief from a severe cough with slight expectoration. Tubercular deposit in apex of right lung; microscope confirmed diagnosis, but few bacilli observed. I treated her for three months daily with the serum, effecting a complete cessation of cough. Muscular weariness and cachexia of tuberculosis gone. She rested one month from treatment, then I gave her another month's treatment of the serum. I used no medicine in this case but the serum, excepting an occasional dose of mild hydrarg chlorid. Up to date she is well and carrying on her business (typewriting in a large office where there are many people and very bad air). Her mother died of tuberculosis.

*Case 3.—First stage.*—Mrs. H., age 29 years, began treatment in June, 1897. Mother and father died of tuberculosis. Had been sick six months. Appetite poor and tubercular cachexia marked. Was a very large woman, five feet, eleven and one-half inches in height. Normal weight 200 pounds. When she began treatment weighed 160 pounds. Microscope confirmed diagnosis of tubercular disease. A deposit was located in apex of both lungs. I treated her daily for one month. A change for the better could be noticed in two weeks. The second month I treated her every other day. I then sent her to San Diego for two months, expecting her to return for two months' more treatment. She returned, but was so well that I considered it unnecessary to pursue treatment further. Her weight after four months was 200 pounds, cough gone, lungs cleared up, and on auscultation and percussion no abnormal sounds could be heard. A peculiar circumstance in connection with this case was a complete cessation of a profuse uterine catarrh, which she had had for several years.

*Case 4.—First stage.*—Miss D., aged 26 years, applied for examination in December, 1897. For six months had felt tired, languid, and could not endure her clerical work, so had to give up her position. Middle lobe of right lung showed a small tubercular deposit. Expectoration very scant, appetite poor. Tuberculosis in family; aunts and uncles died with it; and it is supposed she contracted it from them, as they died at her home with tuberculosis several years before. A brother, of whom I will speak later on, has the disease. A peculiar feature of this case was a dry, scaly dandruff condition of the skin over the shoulders and back. It made no difference what care she took of herself in bathing and applications, this condition persisted. After using the serum treatment for two months the skin became healthy and has continued so. All symptoms of tuberculosis gone and she is now in good health.

*Case 1.—Second stage.*—Mrs. G., aged 37 years, applied to me for treatment in December, 1896. Mother and one sister died of tuberculosis. Was sick for six months before applying

for treatment. Normal weight 125 pounds. When beginning treatment weighed 115 pounds. Hectic fever, night sweats, loss of appetite, and a burning sensation beneath left clavicle. The diseased spot was in the upper lobe of the left lung. I found one small cavity. Moderate expectoration of mornings. I treated her three months daily with serum and she improved rapidly. At the end of four months had gained in weight to 135 pounds, more than she had ever weighed in her life. I used but little medicine, only correctives. At the end of this time cough had disappeared. This case used the serum per rectum two months after I stopped using it with the hypodermic. I have examined her in the last three months and find her perfectly well.

*Case 2.—Second stage.*—Mr. W., age 24 years, a young German. Father and brother died of tuberculosis. He had been ill about six months. Frequent cough, profuse expectoration, sleepless nights, loss of appetite, night sweats and hectic fever, pulse 95 to 110, temperature from 1 to 2 degrees above normal in evenings, weight 145 pounds. Normal weight 170 pounds. Tubercular deposit located in upper lobe of right lung. Small cavity. Microscope confirmed diagnosis. Was treated two months daily with serum. After two weeks temperature and pulse normal. Gained fifteen pounds during the first three weeks. Expectoration gradually declined until at the end of six weeks it had almost ceased. No one could have changed faster from a fast decline back to health than did this man. He left the city after the second month's treatment feeling as well as he ever did, and had regained his normal weight.

*Case 3.—Second stage.*—I class this patient in the second stage, having been affected for about five years with a general systemic tubercular poison, and for eight months marked throat trouble, indicating laryngeal phthisis. Mr. D., age 24 years, brother of Miss D. of whom I have already spoken, applied to me for treatment in November, 1897. Weight 130 pounds. For several years had been feeling badly. Had no cough, but had catarrhal secretions from fauces which caused an occasional clearing of the throat. A depressed feeling of lassitude, skin dry and scaly, hair poorly nourished, and marked tubercular cachexia. At times would have fever for one, two and three weeks, then better again. This fever was supposed to be malaria. Had taken most all kinds of tonics, had been to springs, and was away from home every summer to the mountains. Examination of lungs proved negative. The secretion from the throat being examined by the microscope showed large quantities of tubercular bacilli. His whole system was perfectly saturated with tuberculosis. I treated him daily for three months and he improved rapidly. Tubercular cachexia cleared up and skin changed to a red glow of health. I also used an antiseptic spray for the throat several times a day. Made applications of argent. nit., tincture of iodin and glycerin in the throat. This patient is now using the serum at home every other day under my direction. I see him weekly and he is doing well.

*Case 1.—Third stage.*—Mr. S., aged 29 years, applied to me for examination in September, 1895. He was taken ill in June of 1895 with what he considered at that time malaria. Had a cough several months previous. He was a cigarette smoker, and a "speedy" young man in every sense of the word. His mother had died of tuberculosis several years before. His lungs broke down rapidly, and when he applied to me for treatment in September, he was in the third stage of tuberculosis. One quite large cavity in the upper lobe of right lung. Infiltrated spots throughout different portions of the lungs. A terrific cough and profuse expectoration. Had had three hemorrhages before coming to me. Three to five night sweats every night. He returned home taking tonics with him. He returned to me about the first of November, 1895, very much emaciated with loss of appetite and profuse night sweats. I placed him under the care of a professional nurse for one month; with all these symptoms three or four months at the longest, under ordinary treatment, would surely have been as long as he could have lived. I put him on tonics, antiseptic sprays for lungs, and at once began injections of anti-tubercular serum. I had not used it five days before the night sweats had almost ceased; slept better; appetite better; and after a few weeks the infiltrated spots in the lungs were fast clearing up. His fever ran lower, pulse lower, and he was fast improving. When he first applied to me for treatment his temperature was 103 evenings, pulse 125 to 130; and at the end of the month he was so much better that he dispensed with the nurse and began going out to theaters and various places of amusement, entirely against my wishes; still he took his serum regularly, and both of us were very sanguine of permanent results. He began his excesses in the old way of "wine and women," but still improved. He was very well when he left me after four months treatment. He was able to attend to his work; very little cough, and had no hemorrhage while I treated him. After he went home he continued these excesses. About two months of this kind of life, and the neglect of the serum, he suddenly had a severe hemorrhage, then gradually went down. He went to the mountains. The serum treatment was entirely neglected, and he lived almost a year after this hemorrhage. This man was on the road to recovery and we might say deliberately suicided. The wonderful change wrought in him by the serum gave me to understand that I had access to a remedy that I could hold out some hope to the tuberculous patient; for it had undoubtedly turned a patient most dead with tuberculosis back to health and normal strength, and by his own recklessness he had fallen again to its ravages. This was the first case I treated with anti-tubercular serum.

*Case 2.—Third stage.*—In the spring of 1896, Mrs. B., of Chicago, aged 42 years, applied to me for treatment for a continued cough. She informed me that she had had trouble for three or four years, and her physician had sent her to California, for he did not think she would live long in Chicago climate. Mother and father both died with tuberculosis. Microscope showed large quantities of tubercular bacilli. She had two hemorrhages, one before, and one soon after I began her treatment. Small cavity in central part of upper lobe of right lung. I treated her six weeks. She then went to St. Louis and continued the treatment for three or four months. She spent the winter of '96 and '97 among the pines of North Carolina and returned to California in the fall of '97. She was perfectly well and all expectoration had ceased. In this case I combined tonics and cod-liver oil with the serum treatment.

*Case 3.—Third stage.*—Mrs. C., aged 36 years, in November, 1896, applied to me for treatment; bad cough and had not been well for nearly a year. Had a severe hemorrhage just before beginning the treatment. Was bedfast. Pulse 120 to 130, temperature 103 every afternoon. No night sweats, but loss of appetite and very much emaciated. Mother, two sisters and brother died of tuberculosis. Her normal weight was 125 pounds. Weight when she began treatment 105 pounds. I had trouble the first two weeks in giving her the serum. It had quite a severe reaction on her but in three weeks she began to improve. The fifth and sixth weeks she gained one half pound each day. Then she slowly gained until her weight was 120 pounds. I treated her until February 1897, when she returned home and used the serum per rectum, but it did not have as good effect on her as by hypodermic, causing her severe nervousness and prostration. In May 1897 she returned to me and used it one month, and she improved rapidly. Again returning to her home, used the serum hypodermically. She returned to the city and I treated her during August and September of 1897. On account of some pus in the sputum at this time I used the anti-streptococcus serum for a few weeks, which had a decided effect on clearing up the expectoration. She is using the serum now, changing occasionally to antistreptococcus serum. She is in good health, but not entirely well. Expectoration is almost gone. This case would have done better had she been under my observation all the time, but on account of her family it was impossible for her to remain with me continuously. In this case I used proto-nuclein, cod-liver oil, and strych., at times, as a nerve stimulant. She is now using carnogen, the red and white marrow of beef, instead of cod-liver oil, and is gradually improving. This case is still under my treatment with the serum. The microscope was used about eight months after beginning treatment and the slides compared, showed a large decrease in the tubercular bacilli.

*Case 4.—Third stage.*—Mrs. L., aged 57 years, applied to me for treatment in the fall of 1897. Family history shows tuberculosis. Father, mother, and all her brothers and sisters died of tuberculosis. Had been affected for twenty-five years. Microscope showed quantities of tubercular bacilli. Percussion and auscultation showed right lung almost gone. Cavities in left lung, profuse expectoration, occasional night sweats, bad dyspepsia, temperature ranging from 99½ to 102 evenings, pulse averaged about 80, tuberculous ulceration of bowels causing more or less diarrhea. For some years was obliged to eliminate many things from her diet, such as tomatoes, lemons, peaches, and all fruits of an acid nature. I used a mixed treatment in her case of anti-tubercular serum and anti-streptococcus, it lessened her cough. In two months her appetite was improved, she could eat anything she desired and no bad results from it. After three months treatment she went away from the city and was using the serum per rectum. I have not heard from her since she left San Francisco. I could not expect any permanent improvement in such a case as this, though she was much relieved. I gave her intestinal antiseptics and proto-nuclein, and also iodoform capsules internally in connection with the serum.

*Case 5.—Third stage.*—December 2, 1897, I was called to

Miss B., age 26 years. She had been treated by tonics, creosote and the same old treatment with which we are all familiar. She had been ill for six months. This patient was almost dead. The microscope showed tubercular bacilli in abundance. Her pulse 150, temperature 104½, examination of lungs showed upper lobes of both badly affected from apex down. Severe night sweats, and almost an absence of digestion with such ferment in her bowels that she suffered severely with them. Her whole system was saturated with tuberculosis. So bad was this case that I thought she would die before two weeks, and considered it useless to treat the case as others had given her up. On the earnest solicitations of her relatives I began treating her; using anti-tubercular serum, and at the end of four days had the amount of serum per dose up to twenty drops, which is double the amount for that time in ordinary cases. She then began to feel better. I placed her on intestinal antiseptics. Her digestion improved and the night sweats ceased entirely. At the end of the first month she was able to take a ride every day, if the weather would permit. During the second month she had a relapse on account of a small abscess forming and breaking in the right lung. She again improved. At the end of three months she took the measles; this was serious for her, but she came through all right. At the end of four months she went to the country, and is using the antituberculer serum per rectum. She is still living and feeling well, but not improving. Her pulse came down to 80 and 90 from 130 to 150, temperature normal of mornings, and 100 to 100½ evenings, and at times normal of evenings. Digestion good, appetite good. I had a decided effect in this case in assisting the serum treatment by the use of sat. sol. of borat. sod., one ounce each day per rectum, a tablespoonful three times a day internally. I think this a fine addition in the treatment of tubercular diseases.

I have selected these twelve cases for report, as they are about average cases with me. To recapitulate:

Five cases—third stage.—One dead; one benefited some; one greatly benefited; one well; one living six months after being given up to die at any time.

Three cases—second stage.—One greatly improved; one well over one year; one improving fast.

Four cases—first stage.—Four well.

I advise tonics, cod-liver oil, antiseptics sprayed in the throat and lungs of boro-lyptol, listerin, etc. I advise two or three times a week an enema or normal solution of sod. chlorid per rectum and flush the colon. This acts as a disinfectant, and the absorption of a portion of this solution in the circulation is very beneficial to the patient. Then I wish to impress the method of using sat. solut. of borat. sod., tablespoonful internally three times a day, and about an ounce injected each day in the rectum. When pus exists in the sputum, I advise the use of anti-streptococcus, alternating with the anti-tubercular serum, and the effect is at once marked.

My success has been so great in many other cases and I feel that I can almost insure a case in the first, or incipient stage, where the cavities are small, that many will improve, and at times recover even in the second stage, and occasionally in the third stage.

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## MODERN METHODS IN THE TREATMENT OF TUBERCULOSIS.

Presented to the Section on Practice of Medicine at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

BY WILLIAM F. WAUGH, A.M., M.D.

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If we believe that for every ill that affects humanity there is somewhere a remedy, it would seem that even through the operation of blind chance there was a fair opportunity for lighting upon the means of curing tuberculosis. For in all parts of the medical world there is put into practice a most miscellaneous assortment of experiments. The power of suggestion is being demonstrated by the claims made in behalf of nearly all these essays. The need is so terrible, the boon to humanity would be so enormous, that one must look with kindly sympathy upon the man who desires to succeed.

The fact that success in this matter means so much to humanity demands from us most careful scrutiny that no really valuable idea shall be lost on the most critical examination, that no delusion shall be permitted to prevail. Should my remarks, therefore assume somewhat the shape of criticism, it is with no unsympathetic or pessimistic spirit, but with the earnest desire to favor the truth.

First, we will consider the climatological aspect of the question. When we inhale the pure breezes of Colorado we do not wonder at the enthusiasm that prevails among the residents as to its salubrity. We recognize at once that this is founded upon reason, not upon commercial scheming. We have sent our patients to the Denver region for years, and can readily recall notable instances of its restoration or even curative effects. But that all cases are not thus benefited is sadly attested by the monuments in yonder populous city of the dead. We trust that the physicians of Denver, who have such exceptional opportunities for the study of the question, will give us clean and definite instructions as to what cases should be sent here, and where to send the others.

At present we have some valuable but scanty data upon which to base our advice. Incipient cases do well here, as they do in most places; the best results are obtained in these instances in which the diagnosis is inferential rather than positive. But hemorrhagic cases ascend to this altitude with peril. They fare badly here as well as at the seashore; so that their destination is problematic. Beside the conditions of the case, there lies behind this a consideration as to the personality of each patient. The effects of climate are not now believed to reside in the power of any atmosphere to starve or to poison the microorganisms. That climate is best for each person, that most conduces to his physical health, that allows him to live the most wholesome life as an animal, usually, in the open air, with sunshine, and free ventilation.

Broadly speaking, mankind is divisible into two classes. Types of both may be found in the same family. If one feels strong and vigorous in the pure, cool thin air of the hills, to the hills he should go; but if he feels bad here, and experiences a sense of comfort, of exhilaration, of renewed vitality when he smells the damp air of the salt meadows, he will there have the best chance for cure. Beyond this, and the injunction to keep as far as possible from other cases of tuberculosis, there is little of certainty in the choice of a climate. As to the effects of any atmosphere upon cases of tubercular, streptococcus, staphylococcus and mixed infection, upon primary microbic affections and these engrafted upon previous inflammatory processes, we have as yet but a feeble light. The hope of securing more has brought many of us to Denver.

Of the various forms of serum therapy, I shall say but little, as the program is filled with numerous papers by those who are better qualified to speak. Be they successes or failures each marks an approximation to the truth, if it be but by clearing the way for further experiment. They are commendable in that they are based upon a study of the phenomena of the disease and of the conditions noted in the biology of the

micro-organisms present. Surely if success be obtainable, it is in this direction.

In this connection I will present some facts worth considering. Tuberculosis is separated from the large majority of microbic affections in that it is not self-limited or self-protective. Tuberculosis is also distinguished from the majority of such affections in that we do not find leucocytosis attending it. Can we correlate these two facts, and infer that the failure of self-immunization is due to the fact that nature has here failed to combat this disease by a multiplication of her defenders, the leucocytes? If, so, we may find value in that singular discovery of Vaughan, that nucleinic acid increases the number and activity of the white blood corpuscles. This hypothesis, pregnant with possibilities that may change the science of therapeutics and vitally modify the history of the human race, is all the more worthy of commendation in that it brings us back to the truest basis of therapy, the study of the physiologic conditions aberrant in disease and utilizable in its treatment. The finality of therapeutics must be the comprehension, restoration and maintenance of a normal physiologic state.

But vastly important as are the germicidal elements, and the value of climate as a means of reinforcing the vitality to the point of rendering it victorious, they are by no means our only weapons. The armamentaria with which we relieve the various symptoms of tuberculosis require no mention on my part; but I wish to speak of two agents that have served me well. Many years ago I heard Samuel H. Dickson say that when we learn to control the digestive disorders of consumption we would cure that disease. I need not more than refer to the difficulty of feeding these patients, the anorexia, dyspepsia, constipation and diarrhea, malassimilation, etc., marking their history. But all these disappear under the use of calcium sulfocarbolate, and with them from one to three degrees of the fever, and in all, from 30 to 60 per cent. of the sum total of the symptoms and phenomena is removed by this single expedient. These results have followed so uniformly that I feel warranted in suggesting a trial of this salt. I have given it daily in doses of 2 and 6 grains for nearly two years without any discernible objectionable effects.

The other agent is iodoform. In some consumptives there appears to be a tolerance of this drug, as they have taken from 10 to 20 grains daily for months without any symptom of iodism, while this unpleasant condition has followed the use of four grains daily in non-tuberculous individuals. Whether its effects be germicidal, absorbent or simply those of a pulmonary and analgesic, or of all three combined, the use of this remedy has given me better results than any other pulmonary germicide.

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## THE PSYCHOLOGY OF HABITUAL CONSTIPATION.

Presented to the Section on the Practice of Medicine at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

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Among the great phenomena of nature one of the most interesting is that of the rhythmic action of her forces in obedience to ever constant laws. The cycle of darkness and light that measures a day; of recurring seasons that calendar a year; of ocean's tidal ebb and flow that mark her throbbing pulse: all these are but so many demonstrations of a universal law of rhythm. In our bodies similar laws of periodicity are essential to organic health or even to life itself. Restful sleep must follow wakeful toil in just proportion and at proper intervals. Respiration and circulation are dependent upon ever constant, regulated muscular impulses. The processes of digestion, assimilation and excretion obey this same law of rhythm. So long as these periodic forces are undisturbed in their rhythm by careless or vicious habits of the individual or by accidental and pathologic changes beyond his control, healthy, organic functions are assured.

*Mental control of rhythmic functions.*—The control of these rhythmic forces is for the most part, outside of and beyond our conscious mental appreciation. They act with automatic precision whether we wake or sleep, little influenced by our wills, our desires or our reasoning faculties. They are said to be controlled by the great sympathetic nervous system which connects the various organs of the body in their functions, with ganglionic and cerebro-spinal centers. This is not true in a literal sense for this wonderful system is itself only a mechanism, an intricate co-ordination of communicating lines sensitized for the transmission of impressions to and orders from a central governing intelligence. Whether we accept the theory of a dual mind or not, we are forced to the conclusion that this marvelous labyrinth of communicating sympathetic nerves and the organs to which they are distributed, and hence the functions of these organs themselves are dominated by a never sleeping, ever acting intelligent entity.

Since we know these functionating organs and their special nervous systems act for the most part independently of our objection primary consciousness and volition, we are impelled to the belief that they are controlled by a sub-conscious, instinctive faculty of the mind which regulates all the automatic movements of the non-striated muscles; that it presides over the functions of every organ of our bodies, and that it is capable of being reached and directed in its by psychic influences from within and without. To show this psychic relation and control over the peristaltic action of the bowels and the function of defecation, as well also the practicability of relieving habitual constipation, of non-pathologic origin, by psychic methods are the problems set before us in this paper. We are confident, if their solutions are made evident, a flood of light will be thrown upon many other functional derangements and their rational treatment made plain; a treatment too little appreciated and too often flippantly ridiculed and dismissed by thousands of good physicians who have not investigated the worth of suggestive therapeutics.

*Peristalsis and defecation.*—The essential physical element in the act of defecation is peristalsis. A clear understanding of this function is of vital importance in this discussion. Peristalsis may be defined as a peculiar rhythmic contraction of successive muscular fibers of the intestine. This undulating movement extends through the length of the canal and is called the peristaltic wave. It is less active in the large than in the small intestine. Its function in the upper bowel is, 1, to assist in mixing the food from the stomach with bile and the digestive ferments of the pancreas and intestinal glands; 2, to bring nutrient matter in contact with large absorbing surfaces.

3, to impel waste material toward the lower bowel. In the large intestine and rectum its function is chiefly that of evacuating their contents. The rectum receives its innervation through the rectal plexus of the sympathetic system. Its communication with the cord and spinal ganglia lies through the sacral plexus. Its communication with cerebral centers lies through the hypogastric and the solar plexus, and reaches the brain through the pneumogastric nerve. Thus the muscular structure of the intestines is connected by two routes with the central nervous system, from which all primal impulses emanate.

The act of defecation is accomplished by the increased peristalsis of the descending colon, sigmoid flexure and rectum upon their fecal contents, assisted by the fixation of the diaphragm and voluntary pressure of the abdominal muscles. We have said the essential physical element in the evacuation of the bowels is peristalsis. Let us bear in mind that normally it is a rhythmic, physical force; that the mechanism, nervous and muscular, by which the phenomena of peristalsis and defecation are accomplished are necessarily dominated by an intelligent, regulating mentality, which sends out these impulses to rhythmic action.

*Peristaltic stimuli.*—Any agent which promotes peristalsis will favor evacuation of the bowels. This stimulus may be: 1. *Mechanical,* acting on the peripheral termini of the sympathetic nerves, which convey their impressions to the central intelligence, which in turn sends out its motor peristaltic impulses. Such a stimulus is normally excited by the presence of feces in the lower bowel, by foreign substances like seeds, bran of wheat, oats or corn, by ptomains from bacterial life or protozoa, by massage and physical exercise. 2. *Thermic,* as seen in excessive peristalsis of diarrhea from extremes of atmospheric temperature. Brief applications of hot or cold compress or enema will arouse peristalsis. 3. *Electric.* 4. *Chemical,* by the physiologic action of drugs, the details of which would be out of place here. We may dismiss them all as temporizing expedients, whose effects are fleeting while the habit remains uncured. It is safe to say the bulk of the drug trade centers about aperients, laxatives, cathartics and purgatives, exploited by the commercial enterprise of proprietary medicine men, self-prescribed by the laity or directed by the apothecary or profession, all for the relief of chronic constipation. And so the drugging goes on as it has for ages, while the specific drug is yet undiscovered that will cure the constipated habit. Why? For the simple reason that it *is* a habit. Habits are psychic affairs and not amenable to the physiologic action of drugs. This leads us to the most important agent of all. 5. *Psychologic.* Every day experience teaches us that the intestinal canal is often profoundly acted upon by mental states. Many nervous people have peristaltic unrest. The excitement of certain emotions, anxiety, fear, anger and the like are soon followed by an action of the bowels, which may even become a diarrhea. Many actors, singers and public speakers are greatly annoyed in this manner as a result of "stage fright." Emotional people sometimes have what is termed "hysteric diarrhea." When a person is in a proper state of susceptibility it is possible to cause defecation by the suggestion that at a given time the *feeling* or desire (peristalsis) for stool will occur. All these are purely mental influences and show conclusively that the mind in its manifold properties has a faculty which presides over the function of peristalsis and that it is susceptible to both internal and external psychic influences.

*Etiology of habitual constipation.*—*a.* "Torpidity of the bowels" (Osler) is usually given as a cause of constipation. This is an explanation which does not explain. It is like the logic used before the laws of gravity were understood, when water was said to flow down hill because of its aquosity. Torpidity simply means sluggish or absent peristalsis. The *why* it is so is the *real* cause. This lies beyond the nerves and muscles of the intestinal canal, which are merely the mechanical appliances of a controlling force in the brain. *b.* "Sedentary habits, particularly in those persons who eat too much and neglect the calls of nature" (Osler). One habit may induce another, but sedentary habits are not the primary cause of constipated habits. Over-eating, on the contrary, should stimulate peristalsis by reason of more bulky stools. In the neglect of the calls of nature, however, lies the *essential cause* of functional or habitual constipation. (With constipation from pathologic causes this paper does not deal.) Contributing factors there may be, but without this neglect, which has its origin in the mental processes of the individual, and hence is psychic, there would be no habit constipation. What is this "call of nature?" We take it to be the periodic, rhythmic peristaltic impulse which has been directed by that subconscious faculty of the mind which controls the sympathetic system, and is incited to action by various reflex stimuli for the physiologic purpose of defecation. The voluntary co-operation of the individual with these "calls of nature" must be reasonably prompt or the rhythm becomes disturbed, the "calls" less imperative, less regular and in the end functional constipation is the penalty. Nature defeated in her plans becomes inhibitory. The patient must now resort to many artificial expedients to coax the "feeling" back again. Dietetic and hygienic measures, physical exercise and massage, electricity and drugs may be contributing aids, but the essential factor in setting up once more the disturbed rhythmic impulses must necessarily be the re-establishing of *psychic* control. This fact is overlooked in our textbooks in the treatment of this ailment.

To speak of chronic constipation as a mental and not a physical disorder may at first thought seem rather amusing. Some who have given the subject little consideration, will dismiss the idea as ridiculous. Let them still be joined to their cathartic idols. The overwhelming proof that it is so, is the fact that psycho-therapy is capable of re-establishing the function in a great many individuals without the aid of drugs or accessories. The truth of my proposition that habitual constipation is psychic and not physical in its causation is half way acknowledged (though unconsciously) in the conventional instructions given patients to observe faithfully a regular time for going to stool, and whether the desire is present or not, to persist in going through the motions, with the hope that the "feeling" will eventually return with regularity. Did it ever occur to these practitioners that such a method is very effective mental suggestion? That in their therapeutic wanderings they had finally erected an altar to the unknown God? Him would we declare to you.

Osler says "Much may be done by systematic habits, particularly in the young. The desire to go to stool should always be granted." A careful inquiry

into the habits of constipated people will elicit the fact that they have been negligent in this very essential. Especially is this true of women patients, who are the greater sufferers from constipation. For psychologic reasons they sin grievously against themselves in neglecting a function which can be normal only when its rhythm is heeded. A woman, for trivial considerations, easily defers this call "to a more convenient season." By environment and disposition she is less systematic than a man. A neighborly gossip, a household affair, a feeling of repugnance or downright indolence will often interfere with this important duty. Front door vanity and cosmetic effects are often more important, to her way of thinking, than back door sanitation and rules of health. She is quite apt to look upon defecation as a disagreeable nuisance, to be avoided when possible, to be hurried through with or incompleted when necessity arises. No wonder a function which normally should be a real pleasure, and productive of a sense of comfort and well being, becomes an irregular, straining, pile-producing effort. And so with the established ills of induced constipation the victim resorts to cathartic teas, syrups, powders and pills for a relief which can only be temporary.

We wish to give emphasis to the fact that *habit* is a very large word. That all habits, whatever their tendencies, are of psychic origin. That in habitual constipation, with or without other therapeutic aids, suggestion or psychic influence in some form is the only efficient agent that can re-establish a rhythmic peristaltic habit.

We have shown how peristalsis may be accomplished artificially by the temporizing stimuli of drugs, etc., and they have their proper uses as well as their abuses, but there can be no cure of habit constipation until the initial psychic impulses become once more automatic. The drug has not been found, and, from the nature of the case, never can be found, that will re-establish an intuitive mental impulse. Of necessity drugging will go on as a make-shift in perpetuity, until the profession recognizes the psychology of habits and their only possible cure by psychic means.

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## REPORT OF A CASE OF EPIDEMIC CEREBRO-SPINAL MENINGITIS WITH RECOVERY FOLLOWING LUMBAR PUNCTURE.

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In the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for July 2, Dr. J. B. Herrick reports a case of cerebro-spinal meningitis, in the postmortem of which the diplococcus intracellularis meningitis of Weichselbaum was demonstrated in the meningeal exudate. From this fact and from the large number of cases of meningitis observed in Chicago during the last months, the Doctor concludes that we have to deal with a mild epidemic, although the micro-organism had never been demonstrated before, probably because a bacteriologic examination has been made in but very few cases.

The following case further proves the existence of genuine epidemic meningitis in Chicago at the present time:

The patient, a Russian laborer, 45 years old, previously in good health, was admitted to treatment under Prof. Ge[o.] Butler in the Cook County Hospital, June 17, 1898. [F]ive days before admission he had been suddenly taken with v[o]miting and diarrhea, followed by severe headache, backache [and] pain in the extremities. An outside physician sent him to [the] hospital with the diagnosis of trichiniosis. When first [seen] at the hospital he complained of severe headache; mind [was] very dull; patient constantly stroked his head and neck [with] his hands and groaned; great tenderness on pressure; pu[pils] contracted and equal, reacted normally; no ocular or [facial] paralysis; pulse regular, full and soft, 48 beats to the minu[te]; temperature 98, respiration 28; no eruption; examination [of] chest, abdomen and extremities absolutely negative. [During] night following admission he was in a continuous pain[ful] stupor; very restless; slept a little under the influence of m[or]phin. The pulse remained slow, 52-64, and the temperat[ure] on the day following ranged between 100 and 101 degr[ees]. The bowels were moved by cathartics. During the follow[ing] days the pulse remained slow, while temperature on the [3d] reached 103 degrees, with a pulse of 68. Headache and [the] delirium continued. No new symptoms were observed, exc[ept] a slight right-sided, facial paresis. An ophthalmoscopic exam[in]ation on the 22d showed no change in the fundus; there was marked cupping of the disc on the right side. The delir[ium] became more marked and continuous; headache and tend[er]ness, with rigidity of the neck, persisted; but under [the] influence of bromids or morphin the patient slept four to [five] hours during the night. The pulse increased in frequency; [on] the 25th it ranged from 100 to 120, temperature 100 to [103] degrees.

The diagnosis of meningitis having been made, and in order to ascertain the kind of micro-organism pres[e]nt, a lumbar puncture was made on the 26th. A fine needle was introduced between the second and third lumbar vertebræ, one-half inch from the median line, the cerebro-spinal fluid escaping drop by drop, each drop being distinctly cloudy; 20 c.c. were with[d]rawn. No change was noticed in the patient's con[di]tion during the removal of the fluid. On centrifugalizing the fluid a whitish sediment was obtained, consisting almost exclusively of pus cells, most of them greatly disintegrated. No micro-organisms were seen in or around the cells. Nine human blood serum tubes were inoculated, and on seven no growth appeared. In 36 hours minute drop-like cultures were observed on the two remaining tubes, which under the microscope were seen to be pure cultures of a diplococcus, with occasional titiads. It proved to be the diplococcus intracellularis meningitis of Weichselbaum, and did not stain by Gram's method.

On the day of the puncture the patient's temperature ranged between 99.6 and 100.6; pulse 96-100. The night following he rested better than any night previous and seemed rational in the morning. The temperature next day was 97-99.6; pulse 92-100. Since then the headache, tenderness and rigidity of the neck, and restlessness rapidly have disappeared. On the 28th maximum temperature was 99.2; on the 29th, 98.8; on the 30th it reached 101, but has been normal ever since. On the 27th ophthalmoscopic examination revealed a slight optic neuritis on the right side; only one-fourth of the border of the disc could be made out. On the 29th this was more marked and present to a less degree in the left eye. On July 2nd the optic neuritis was greatly lessened, margins of both discs being distinct. June 28th and the two days following there was urinary retention, so that patient had to be catheterized. July 2nd the patient sat up, had a good appetite and no headache. Since then he has been rapidly gaining in strength and seems to have made a complete recovery.

This case adds another to the number recently reported which go to prove that lumbar puncture not only enables us to make, intra vitam, a bacteriological diagnosis of the different varieties of meningitis, but

also that it is the only therapeutic agent which is of more than a palliative value in the treatment of the disease.

## SOCIETY PROCEEDINGS.

### The Medical Society of the State of New Jersey.

*One Hundred and Thirty-second Anniversary at Asbury Park, June 28, 1898.*

FIRST DAY.

The session was opened on Tuesday, the 28th, at 3 P.M., with the transaction of much routine business, action upon certain matters relative to the society and reports upon ethics, honorary membership, etc.

In the evening the address of the President, Dr. D. C. ENGLISH, was delivered.

Dr. English congratulated the Society on its one hundred and thirty-second anniversary, extended a welcome to the visiting brethren from sister societies, returned thanks for the distinguished honor conferred on him by a society that was not only ten years older than the nation, but had a record surpassed by none in devotion to the highest interest of the profession and in loyalty to the State and sacred behests of humanity. He referred to some of the official changes in the Society the past year, especially to the death of Dr. J. J. H. Love and his appointment of Dr. William Pierson in his place as Third Vice-President and Dr. W. J. Chandler in his place as Recording Secretary. He announced his subject as

PATRIOTISM IN THE MEDICAL PROFESSION

as exhibited in the past and as it may find fuller expression in time to come. After defining patriotism he spoke of the four wars through which the nation had passed, culminating in making the country, indeed and in truth, "The land of the free and the home of the brave." He then spoke of the fact that the Society was in session while the fifth great war was in progress, which was partly the reason for the choice of his subject, which he characterized as a righteous war, less selfish than any of the others in that it was fought in others' behalf rather than our own; that England and other nations had permitted the shocking atrocities practiced toward the Armenians; that America had taken the lead and is today the nation that stands for justice, righteousness and humanity, offering to sacrifice her resources of men and money as far as needful to relieve the oppressed. He then proceeded to demonstrate that in no class of citizens had patriotism had greater manifestation or been exhibited with as much unselfish devotion as by the medical profession, and it was considered under two heads: patriotism in times of war and in times of peace. He considered under war, chiefly that of the Revolutionary War, and of that only New Jersey's record, giving much interesting historic data concerning the profession and the part played by it in distinguished position both in the army and the chief positions of influence; showing that advance in medicine and the development of a strong sentiment of patriotism dated from the French and English war (1758–66); giving brief sketches of the fourteen early presidents of the Medical Society of New Jersey, who bore an exceedingly conspicuous part during the war; and also the names of sixty-six others who served ably in the army and in Congress and other civic positions; of the fact entered on society records that because its members were so actively engaged no session was held from 1775 to 1781; that these men were men of culture, of decided religious character and great influence in their respective communities. "These patriots not only fought the battles, gained the victories and secured our independence, but were patriots wise enough and true hearted and virtuous enough to see that victories won and independence gained amounted to but little unless the foundations of the government were laid strong and secure, and that patriots who were true to God, to liberty and righteousness were placed in power to build enduringly. We have observed that these patriotic physicians not only fought well and performed their high and holy mission faithfully, but they served as well in official positions." "They were incorruptible office holders; they were upright judges; they were politicians in the highest sense of the word, who loved country more than party; they used no corruption fund, and the people were not of that kind who sold their birthright for a mess of pottage." Reference was then made to the War of the Rebellion, giving the members who served and their faithfulness, and fitting reference made to Dr. John Blair Gibbs, the first martyr who fell on Cuban soil in the present war, who formerly lived in New Jersey and was educated at Rutgers College.

Dr. English then spoke of patriotism in times of peace, in which it had its highest, noblest and lifelong manifestations, vastly more important, as peace is preferable to war; the public good, the very purpose for which government exists; of the exhibition often amid struggle, self-denial and often self-sacrifice; the saying that "Peace has its victories no less renowned than war," was not poetic fancy but solid statement of veritable truth. He dwelt upon: 1. Scientific observation and research as involving pecuniary sacrifice, sometimes the sacrifice of life and often reproach and opposition "as fine, sickly sentimentalists and cranks, who in their devotion to a few dumb animals are willing that multitudes of human beings shall suffer and die." 2. Its exhibition in the work of the State Medical Society, which has been purely in the interest of the public and in most cases against the pecuniary interest of the profession. 3. In the cause of education. The work done and acknowledged by educators was dwelt upon. The Doctor urged the teaching in schools of the manner of the spread of contagious diseases and methods of prevention, especially why disinfection and isolation are required, and then impressing by the use of diagrams that sanitary measures are effective. 4. In the cause of state medicine, "preventive medicine is the crowning blessing the medical profession has conferred upon humanity and is the embodiment of the highest type of patriotism the world has ever witnessed, for it is virtually in the final attainment of its aim the profession sacrificing itself." He quoted Professor Gross: "The great question of the day is not this or that operation, not ovariotomy, nor lithotomy, nor hip-joint amputation, which have reflected so much glory upon American medicine—but preventive medicine." He dwelt briefly upon the work in this country and then some of its results, especially in New Jorsey, giving the ten leading preventable diseases for the ten years, 1888–98, the great saving of life and what it meant to the State. He urged strongly the introduction throughout the State of the medical inspection of schools, both as one of the most effective measures for the prevention of the spread of contagious diseases and of eye troubles, mentioning what has been accomplished in Boston, New York, Philadelphia, Chicago and elsewhere. 5. Professional charity was briefly and appropriately set forth, the abuse of medical charity well characterized and some good suggestions offered. 6. In political life, medical men in Congress and the State legislatures, their influence, opportunities and duties were briefly considered, as well as their influence and duty in election of good men and securing good legislation. The open saloon with its iniquitous treating customs and political influence, and the curse of syphilis were touched upon. In reference to the National Board of Health the Doctor spoke as follows: "Efforts have been made for years to secure a National Board of Health, which would be of incalculable value and blessing to our country. These efforts, however, have thus far been unsuccessful. We will not discuss the reasons why, but only express our belief that fear that it might interfere with the schemes and ambitions of others, and the failure in a former measure that was defective in conception and plan are the two serious (?) obstacles that are allowed to jeopardize the lives of millions of our citizens. The ambition of no man or body of men should be considered, and as to old failures it is not only puerile argument, but no body of men profit more by the mistakes of the past than medical men. In a letter we received from United States Senator Gallinger recently, he says: "My sincere conviction is that it will be a long time before the legislation you call my attention to is secured. It is much more likely that the Marine-Hospital Service will be granted additional powers and that national health affairs will be kept in the hands of those who are now at the head of that bureau." We are at least thankful that the efforts to secure the national board have stimulated Congress to consider the matter more fully than before and make much larger appropriations for health measures, but we desire Congress, the medical profession and the public to realize that these appropriations have been almost entirely for the merchant marine of the United States, for quarantine purposes, the investigation of epidemic diseases in Havana, etc., under the Marine-Hospital Service, and any additional powers granted will not enable that department to do the systematic and thorough work that a national board of health with proper adjustment of relations with State boards of health would be able to accomplish. The government appropriated in 1896–97 about three-quarters of a million dollars for all public health measures, mainly for the support of the numerous hospitals, the twelve national quarantine stations, investigations, etc., under the Marine-Hospital Service, out of nearly three hundred millions total appropriation. Certainly it would seem if 141 millions could be afforded for pensions and scores of millions for river and harbor improvements in the interest of commerce (and possibly in some

cases to advance political fortunes and aspirations), that at least five millions could be spared and would be most wisely appropriated in caring for the lives and health of the citizens of this great Republic, by the establishment of a national board of health, though no such large sum has been asked or suggested. It seems to us that the question is very largely as to whether the great, the vital interests of the United States in matters pertaining to the public health, shall be circumscribed in their scope and field of operation, and shall be committed to men likely to be swerved by political or personal ambitions, who will seek to build up a strong medical aristocracy with autocratic powers that will enable them to enter any State and exercise their supreme authority over State departments; or whether we shall have a public health department established on a purely scientific basis and conducted by scientific men solely for the advancement of the health interests of this great country, in a manner that shall be in consonance with and shall conserve our republican form of government, and shall in its operations embrace the whole country in the advancement of public health by all measures essential to that end. We believe there should be a Commissioner of public health appointed by the President of the United States, and a Medical Congress or Commission, consisting of one able sanitarian from each State and Territory, appointed by the governor; that they should meet in Washington in brief session, say once in four months; said commission to formulate the laws under which the work shall be carried on, and the Commissioner to carry out such regulations as the Congress or Commission shall establish, with such limited powers as emergent exigencies shall require. It is patent, we think, to every disinterested intelligent person who desires the attainment of the highest and best ends that some such method will avoid, as the Marine-Hospital Service will not, all conflict of authority and lack of co-operation between the United States and the respective States and will insure the greatest efficiency.

In closing, Dr. English urged the display of that patriotism which in its enthusiasm obeys the injunction of wisdom: "Prove all things; hold fast that which is good." He emphasized the need of caution in making or accepting hasty statements of half knowledge, giving two points in illustration: 1. Concerning the general practitioner, because the science of medicine has been wonderfully developing and expanding and knowledge is increasing so rapidly, therefore the general practitioner must go. It is not a logical sequence except in some individual cases. Because the specialist is a one-sided man who magnifies his specialty unduly, brings many cases wrongly within the scope of his specialty, or occasionally treats his brother practitioner non-ethically, therefore the specialist is a fraud and a delusion. It is not a logical conclusion as to specialists in general, though it may have its occasional individual application. He then quoted from Prof. J. M. DaCosta, and endorsed the work of legitimate specialists. 2. Concerning the family physician, his lessened influence was alluded to and deprecated as not being the highest interest of home or country. The address closed with earnest words on the dignity of the profession and the cultivation of the ethical spirit as not only conducive to the highest advancement of the profession, but as the loftiest form of patriotism.

The reports of the standing committees being next in order, Dr. H. W. Elmer read abstracts from the reports received from the several county societies. These consisted of brief accounts of the prevailing diseases in the various sections of the State, the condition of the societies, notices of deaths of prominent members, etc.

THE REPORT ON PROGRESS IN STATE MEDICINE AND HYGIENE,

by Dr. HENRY MITCHELL, Secretary of the State Board of Health, said that the distinguishing feature has been the rapid application of laboratory demonstrations for the prevention of the spread of communicable diseases. New teachings are not accepted so readily as a conservative course begins to prevail. It is still true that the value of sanitation has not penetrated the minds of municipal authorities as it should have done. Local health departments give signs of a more promising course than heretofore. There is a public demand for better organized sanitary service. During the last half century smallpox has decreased 96 per cent. in number of deaths; typhus fever 95; enteric fever 60; scarlet fever 81; phthisis is still too high, though it has fallen 46 per cent. Six hundred thousand persons now reach the age of 21 years who, sixty years ago, would have died. In New Jersey the average duration of life is now fifty-nine years. In the last year the deaths from preventable diseases in the State show a large diminution. Great activity has prevailed in every department of hygiene; the bacteria of tuberculosis, it has been found, will float in the air for five hours. Bacteria are expelled from the mouth by loud speaking, etc., but not when the voice is low and gentle. Small movements of the air will waft them about; danger is great from moisture from the mouth and nose of persons at operations, as sneezing, etc., and the patient may infect the air by heavy breathing. Having undergone no attenuation, these bacteria are very virulent. Germano has found live bacteria in dried membranes after four months. His conclusions are: The bacilli of diphtheria can withstand drying for a long time; rapidity in drying does not affect the resisting power; these survive better when surrounded by dust, preventing oxidation; completely dried it retains its virulence till its death; air by dust can carry bacilli while in the living state; so with other bacilli. Ventilation of sewers has attracted attention. It has been found that the air of sewers does not carry bacteria in great numbers. On the contrary, it is singulary free from bacterial life. The odors may be disseminated with no bacteria, hence stench nuisances are not necessarily accompanied by the germs of disease. They may be a warning that danger is not far off. Recent discoveries tend to show that sewer gas only detracts from the breathing of pure air. These investigations may hasten the time when the courts will hold that all conditions which impair the purity of the air are injurious to public health and render the individual less resistant to the real danger when it may chance to occur. Flushing of drains with fresh air dilutes the gases and the danger is minimized. A drain without an intercepting trap is like a house without doors or windows and invites the very evils it was intended to prevent.

It has been found that typhoid fever is not spread by sewer gases. In well constructed sewers the sewage passes away freely and without putrefaction and the air is not unhealthful. Sewage does not form a medium in which growth of typhoid bacilli readily takes place. These undergo destruction in a few days, at most in one or two weeks. Hence the conveyance of this germ by sewer air must be exceptional. Thirolox has found the bacillus of acute articular rheumatism in the blood of five persons. Intravenous injections of this organism invariably produced cardiac and pleuro-pulmonary lesions. He believes the disease may not always be recognized as rheumatic in character because of the absence of articular inflammation. It has been agreed that the incubation period of bubonic plague should be held at ten days, though it is generally admitted that it is from three to four days. The terms "isolation," "surveillance" and "observation" were defined: Isolation consists in absolute separation of the sick from all uninfected persons. The latter two signify supervision without detention and passengers are allowed to go to their homes, where they can remain under medical care as long as deemed necessary.

Popular interest has been aroused concerning the time-honored but not very acceptable method employed by barbers in carrying on their trade, and much has been written by the profession in condemnation of the application of dirty hands, tools, sponges, brushes, soap, etc., to the faces of the patrons of the barber shop, but in only a few shops have steps been taken toward the introduction of aseptic precautions here. Inquiries among the manufacturers of sterilizing apparatus does not show that any suitable, convenient and efficient appliance for the barbers has yet been offered. These rules may be laid down as an outline of the requirements to which the modern barber should conform in shaving: Clean his hands with soap, water and a nail-brush; apply to the beard soap paste, using only the hands; keep the razor in a sterilizing oven; when dull, do not strop it, use another from the sterilizer; use no large cloth spreads and towels only to protect the garments, no sponges, puffs, pads nor magnesia cake; provide a large sterilizing oven in which the temperature can be kept evenly at 230 degrees and in it keep a supply of towels which have been washed and boiled; use metal combs, wash them after using and keep in sterilizer, hair brushes, if used at all, keep thoroughly washed and clean.

He asked attention to the opportunity now offered in Rutgers College to persons who may desire to pursue the occupation of sanitary inspector, to demonstrate their fitness for the work. Certificates of ability are issued when entitled, and we may hope this will lead to the employment of sanitary officers of a superior type, and inefficient persons will be replaced in time by skilful physicians, etc.

Dr. W. H. IZZARD read the report on

PROGRESS IN MEDICINE AND THERAPEUTICS.

He said: The practice of medicine has materially changed in the last twenty-five years. The subject is broad and has been fully into the field of all the branches. He desired only to make a few comparisons between the practice of today and that of a quarter of a century ago. Such teachers as Gross, Pancoast, Wallace, Meigs, Dunglison or Mitchell have not faded much in the shadows of the brilliant men of today. Within the last

mentioned, a specialist was a curiosity, looked upon with suspicion, if not pronounced quacks. Now they are numerous and enjoy perfect freedom and affiliation without question; so much so that most every one afflicted with an affection of the eye, nose, throat, lungs, stomach, intestines, especially in the right side, skin, ovaries, special organs of generation, etc., are sent or go themselves to the specialist, and you see what is left for the general practitioner. If this is progress in medicine, then it has been wonderfully marvelous. Men of my years, covering a period of thirty years, and there are quite a number present, are today to admit the superiority, method, *modus operandi* of medicine and therapeutics, also the wonderful increase of remedial agents over those at our command twenty-five years ago. Then the "Materia Medica" recommended for the text-book contained less than 400 pages, large type; now large volumes containing twice the number of pages and in small type; then the "Dispensatory" was a small book; now almost as large as "Webster's Unabridged;" then it was powders, pills (without sugar) and bitter potions; now the pills are covered with sugar, gelatin, and everything else is compressed into tablets and the rest of the materia medica into sweet palatable elixirs; then we depended upon the pulse to determine the grade of fever; now the thermometer; then we depended upon the lance, quinia and veratrum viride to subdue inflammation; now the lance has become rusty and almost totally discarded and new remedies are employed; then morphia and opium were almost solely depended upon to relieve pain and produce sleep; now we have placed in our hands a score of remedies; then we treated and generally cured diphtheria with nitrate of silver and astringent washes locally and quinin and iron internally; now we use thirty-six to forty-eight hours of time to get a bacteriologic analysis or examination made at Princeton or some other place so we may be sure we have got diphtheria, then a few more hours in getting some genuine fresh and only pure antitoxin, and if we are not in possession of a regulation syringe we spend a little more time in finding some doctor to loan us one, and if our patient is yet alive, we treat him according to advanced medical science; then we used to treat and cure our patients with pain and soreness in the abdomen, especially in the right side, by blisters, mustard, stupes or poultices externally and rest and opiates internally; now we use the knife, a solution of bichlorid of mercury, sponges, needles, thread and a $8500 fee, results not mentioned, all marking the most marvelous progress in medicine; then we successfully treated erysiyelas by applying collodium over the affected parts to exclude the air, and quinin and iron internally; now I treat them the same except that I use a mucilage of flaxseed (much cheaper and easier of access) and the quinin and iron internally; I do not know what others use; then we treated eczema, especially herpes zoster, with a solution of nitrate of silver 10 grains to the ounce applied locally with a camel's-hair brush and Fowler's solution internally, with quinin and iron; now the internal treatment ought to be the same.

I might go on through the few remaining diseases left to the general practitioner, but I throw out these few aphorisms to show that the teachings, the study, the practice and the success of the older members should not be too much disregarded, and to point out to the younger members the danger to their patients and themselves, especially the danger of too much experimentation and in hastily using the innumerable new remedies brought to our notice by the journals, and advertising mediums of the manufacturers and others who seek to get rich by the endorsement of honest and honorable members of the profession. I believe in progress and I believe today that the medical profession is doing more to alleviate suffering, to lengthen the days of man, to stop the progress of disease, to avert epidemics and to make man's destiny brighter, happier and healthier, than all the other professions or forces of human organization combined. I would like to have alluded to the admirable sanitary laws and organizations compared with a quarter of a century ago, and to the relegation of epidemics to ancient history, but time will not permit.

Dr. CHARLES YOUNG read a "Report on the Progress in Surgery," a résumé of the various matters that had appeared in the journals during the past year.

"Progress in Diseases of the Throat and Nose and in Eye and Ear Diseases," was reported on by title.

Dr. FAYETTE SMITH read a report on certain diseases. Operations for laryngeal cancer had resulted in most excellent results. Adenoir growths claim much attention and have been found the cause of much trouble, as for instance in cases of inability to talk from infancy; these were found to be the cause and great good was obtained by their removal. In one instance of examination of the pupils of a deaf and dumb institution, 68 per cent. were found to be so afflicted. This is not accidental, there must be a causal relation here. Instances were mentioned where, by operation, in three months the hearing was improved and a week later talk began, and there was a steady improvement in speech and intellect. It is important that such examinations should be made early to gain all the benefit from the operation. In ozena, diphtheritic antitoxin had been used and it was claimed to be powerfully instrumental in the cure. It demands the continuation of this plan. There is some risk and inconvenience, but it should be demanded. In rhinology there has been little improvement; nasal surgery with its improvements on nature should not be thought of. The best authors insist that milder measures are preferable. Eucain is now established as a safe and satisfactory remedy or anesthetic in the throat and nose. There is no danger as with cocain, especially of inebriety; a 4 per cent. solution should be used for examinations, 10 per cent. for operations. In operations on the eye and ear there is more improvement in the technique than in books or instruments.

Dr. B. MEADE BOLTON read a

REPORT ON PROGRESS IN BACTERIOLOGY.

There appeared to be progress in the study of diphtheria, as there was a continual reduction in the mortality since the use of antitoxin. The serum should be the most potent that can be obtained. Much appears to depend upon the article employed. In tuberculosis the sputum taken early in the morning should be used for a test. The danger from sputum is because it is thrown into the air and thus diffused. All do not agree as to finding the bacilli in butter. Bovine tuberculosis is the same as that of man. Typhoid fever shows no improvement in the tests, etc., save the use of Widal's test. In bubonic plague we now have cures up to 95 per cent.

(*To be continued.*)

## PRACTICAL NOTES.

**Potassium Iodid in Actinomycosis** has not fulfilled the expectations with which it was greeted. Poncet has found it entirely ineffective in eighteen out of twenty-five cases. Sixty were cured, out of eighty recent simple cases, but the iodid was only supplementary to an operation, which is in fact its chief indication. In visceral manifestations the iodid is only useful in the earliest stages. Simple incision and thermocauterization will often suffice to arrest the affection.—*Semaine Méd.*, May 14.

**Subcutaneous Injections of Phenic Acid** were found very effective by Skultecki in two cases of severe erysipelas and one of septic puerperal fever; all recovered promptly and he recommends the treatment as strongly as it has already been lauded for tetanus and anthrax. The erysipelas patients received seventy-two to eighty-four injections, a total of 1 gram .44 to 1 gram .68 phenic acid, in a 2 per cent. solution, 1 c.c. every four hours. The puerperal fever was treated with four centigrams of phenic acid every three hours, the first day, and afterward with three centigrams every four hours, for a week, when the cure was complete.—*Semaine Méd.*, May 25.

**To Avoid Vesical Complication.**—In both men and women, in the healthy state, the urethra in a certain number of cases contains pathogenic bacteria. This is naturally far more common in women. In cases of surgery about the pelvis or rectum, in which catheterization is likely to be needed, the first indication, next to a sterile catheter, is to begin, before the operation, the administration of remedies to make the urine bland and non-irritating. Where this is a routine practice, bladder complications are of great rarity.—*Int. Journal of Surgery.*

**Eight Hundred Children Treated with Physiologic Horse Serum.**—Solares reports most gratifying success in anemia, chlorosis, chorea, incontinence of urine, scrofula, adenitis, neurasthenia and during convalescence from all diseases, from the administration of physiologic serum from healthy horses, which he has been practicing at the Children's Hospital at Barcelona since June, 1895. He recommends it as a strengthening, stimulating tonic, effective and harmless. The occasional slight, transient, secondary effects observed were similar to those that follow

injections of antitoxin, and probably are due to the same causes. The nutritive processes are powerfully promoted and the nervous system stimulated, but he ascribes its chief tonic properties to the globulins or spermins in serum which accelerate the intra-organic oxidations.—*Revista de Anat. Pat. y Clin.*, April 1.

**Puerperal Septicemia Cured with Injections of Sublimate.**—Patient 32 years old; placenta previa, hemorrhage and artificial delivery as seven months. Six previous normal deliveries. She received in six days fifteen injections, a total of 0.12 gram sublimate, supplemented by alcohol, quinin, digitalis, ice internally and externally, and permanent irrigation of the uterus with a 1 per thousand sublimate and 3 per cent. phenol solution. Recovery in two weeks. Montini and Perrego, who report the case in the *Gazz. d. Osp. e d. Clin.*, April 3, recommended the sublimate treatment as simple, safe and effective.

**Easy Method of Making a Plaster Cast.**—A couple of pieces of thin, coarse flannel are dipped in water and spread on a table. The dry plaster is then sprinkled over one of them until it absorbs the moisture and forms a paste which is then smoothed with the hand and worked into the meshes, adding plaster as long as there is moisture to dampen it. The second piece of flannel is then placed on top of it and the same process repeated, when the cast is ready to apply. If a very stiff cast is required a third piece of flannel can be added in the same way. To make it fit over an uneven surface slits can be cut in the flannels, not facing each other. The cast is extremely light and can be folded, removed and fitted closer without breaking. Turpentine or lime-water can be used instead of common water if preferred.—*Revista de Ciencias Méd. de Barcelona*, Oct. 10, 1897.

**Water Treatment of Children's Diarrhea.**—To remove the cause as rapidly as possible, Mongour first purges and then has the child drink sterilized water, as much as three to four hundred grams a day, with no medication. Vomiting ceases at once, and recovery is complete by the second or third day. Except for those in a moribund condition, all his cases have been cured: 13 hospital, 12 dispensary and 27 in his private practice. Larger has used for several years Vichy water, 2 to 5 liters a day, to counteract the acidity to which he ascribes the trouble. Water treatment prevents the tissues from drying up, and acts like a tonic in much the same way as artificial serum.—*Bulletin Médical*, 20-24.

**Antipyrin in the Treatment of Fat Diabetes** is the most effective of all remedies, according to the experience of Professor Lemoine. He gives half a gram each of antipyrin and lithium benzoate in a glass of alkaline water three times a day for a fortnight, in cases showing symptoms of intoxication and hepatic insufficiency with diminished secretion of urine and elimination of urea and the characteristic odor of apples in the breath, which warns of impending coma. When the symptoms of intoxication have passed away, he administers 2 to 3 grams of antipyrin in three doses during the day, always in the alkaline water, and 1 gram of lithium carbonate or benzoate twice a day between meals, keeping up the maximum dose of antipyrin for a week and then reducing to 1.5 gram for another week. The treatment is then suspended for a week and resumed for another fortnight, which usually abolishes the last trace of glycosuria. He confirms the cure by administering half a gram each of lithium carbonate and benzoate in alkaline water twice a day half an hour before breakfast and supper, continued for a fortnight every month. If nervous symptoms predominate, he gives only 1.5 to 2 grams antipyrin a day, supplementing it with a tablespoon of the following in a bowl of milk or any unsweetened beverage, an hour before bedtime: Potassium bromid, 40 grams; sodium phosphate, 10 grams; water, 300 grams.—*Semaine Méd.*, May 25.

**Blindness in Spain.**—One of the principal impressions produced on those who attended the recent Hygienic Congress in Spain was the large number of blind persons, not only among the beggars, but in all circles, even at the general sessions of the Congress. Hirschberg states that there is not a single professor of ophthalmology in the country, nor any public institution for affections of the eyes, which are treated in the public hospitals or small private institutions. "Owing to their blind fatalism they allow the affection to reach a stage beyond all cure, with no effort to check it, except possibly praying to Saint Lucia." Camuset remarks that in 300 cases which he examined, there were only three or four that were caused by amaurosis; the rest proceeded from neglect during infancy or from granulous inflammation. Six institutions have been founded, but their founders have retired or died and the institutions have lapsed. Hirschberg observes that he never saw so many shriveled eyeballs anywhere, not even in Egypt. The percentage of the blind is larger in the southern provinces. He mentions a street band of nine blind men and also that the custodian of the watch-tower at Cadiz, famous for its magnificent view, was almost totally blind. His only reply to Hirschberg's questions was, "One must be patient."—*Deutsche Med. Woch.*, June 9.

**The Schleich Method of General Anesthesia.**—Time and experience are confirming the value of the method of general narcosis proposed by C. L. Schleich of Berlin, at the German Congress of Surgery in 1895, which is based on the logical principle that a narcotic substance inhaled is taken up more readily into the circulation and is then eliminated in the exhaled breath the more rapidly and completely, in proportion as the point at which it boils or vaporizes approaches or coincides with the body temperature of the inhaler. A non-vaporized narcotic, such as chloroform, whose boiling point is at 65 degrees C., is absorbed less readily, requiring a larger amount, is retained in the system more, and the task of eliminating it does not devolve upon the proper organ, the lungs, but upon the other parenchymatous organs, especially the liver, which explains the alterations in these organs after death from chloroform. If, on the other hand, a narcotic with a very low boiling point is administered, such as ether (boiling point at 34 degrees C.) the vaporization is so intense at the temperature of the body that it interferes with the respiration, hinders or prevents the dissociation of the respiratory gases, producing cyanosis, retention of the carbon dioxid, which is under less pressure than the super-vaporized ether, and also stretching and tearing the epithelium of the alveoles, leading to secondary pneumonic infiltration. He therefore proposed a triple combination whose boiling or "vaporizing maximum" is identical with the temperature of the body; petroleum ether or benzin (with an established boiling point at 60 to 65 degrees C.), sulphuric ether and chloroform, varying the amount of each in proportion to the rapidity of elimination desired, to secure a higher or lower boiling point. Formula 1. For brief operations. The boiling point, 38 degrees C., co-incides with the internal temperature of the body: Chloroform, 15 parts; petroleum ether, 5; sulphuric ether, 60. Formula 2. For operations requiring a little more time. Boiling point 40 degrees C.: Chloroform, 15; petroleum ether, 5; sulphuric ether, 50. Formula 3. For major operations. Boiling point 42 degrees C.: Chloroform, 30; petroleum ether, 5; sulphuric ether, 80. It is administered with a mask. The sleep induced is prompt and tranquil, resembling more the hypnotic sleep than ether or chloroform narcosis. There is no cyanosis, salivation nor accumulation of mucus nor consecutive pneumonia. There are no counter indications if the lungs are working normally. It has been said, "he has deprived anesthesia of all its dangers." Meyer and Weidig consider even the small proportion of free ether in his formulæ a slight menace, and prefer a solution with the chloroform and ether in molecular combination, which requires petroleum ether with a little lower boiling point.

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SATURDAY, JULY 23, 1898.

## TUBERCULOSIS OF THE MAMMARY GLAND.

Tuberculosis of the mammary gland has heretofore been looked upon as a rare affection. The recent simultaneous reports of four cases of this disease in American medical journals, two by FERGUSON[1] and one by FREIBERG[2] in this JOURNAL, indicate that the affection may not be as rare as ordinarily supposed. The most extensive of these recent articles upon this subject is that of SCUDDER.[3] After making a careful search of the literature he found that there are but eighty instances of tuberculosis of the breast recorded, and twenty-three of these eighty cases lack positive evidence of being tuberculous.

The methods of infection may be enumerated as follows: In primary mammary tuberculosis the bacillus may find its way into the organ through the milk ducts, or through an open wound in the nipple, as in DEMMES'[4] case or in the skin. Secondary tuberculosis is the most common form. Here the bacillus enters the breast through the blood or through the lymph from foci in some near or distant part of the body. The disease may also arise through extending by contiguity of structure, as from tuberculosis of the rib or sternum, tuberculosis of the pleura, axillary or other neighboring lymphatic glands.

The majority of all the cases were found by SCUDDER to be thirty-five years old or younger. Mammary tuberculosis occurs, therefore, in comparatively young adults; that is to say, during the period of functional activity of the gland. In about one-half of the cases the women had borne children. Lactation was active during the development of the tubercular disease only a few times. It appears that in the tuberculous puerperal cases there is a greater frequency of suppurative mastitis than in the normal puerperal case, and it would seem that infection with tubercle bacilli would find more favorable soil in a breast once the seat of inflammation. It is an interesting fact to note in passing, that of these eighty cases only six occurred in men.

Among the symptoms, especial mention should be laid upon the fact that in about one-half the cases pain in the breast is mentioned as an early and constant sign. In many cases the patients have sought relief, not so much for the swelling or for the discharging fistulæ that may be present, as for the persistent pain in the breast. In a few cases the nipple was retracted.

The process may show itself in various forms, from a single small nodule or many nodules scattered throughout the breast, to hard irregular masses of varying size, situated in the center or in some segment of the gland. The masses may be movable or fixed. In the majority of the cases the process was slow in its progress, occupying months and years in its course from the time it was first noticed to the time that the disease was examined by a medical man. In SCUDDER'S case the duration of the disease was five years. In nearly all the cases the axillary glands presented different stages of tuberculosis. In a considerable number of cases (twenty-nine) tubercle bacilli have been found either in the tissues or in the pus from the abscess.

As regards the diagnosis it will serve the present purpose to state, that tuberculosis of the breast may be confounded with practically every other disease of this organ which may give rise to swelling. Among these conditions are carcinoma and sarcoma, benign tumors, cysts, syphilitic gumma, and actinomycosis. The comparative ease with which a diagnosis of tuberculosis can be reached by means of bacteriologic examination and inoculation experiments does not necessitate a detailed description of the various other points in the differential diagnosis.

As regards treatment the only thorough method is complete removal of the disease, including the whole breast and all the contents of the axilla. The old method of curetting tuberculous abscesses and chronic fistulæ of the breast is not to be depended upon. Radical excision of all diseased tissues, with a wide margin, should be practiced, because tuberculosis may extend further into the surrounding tissues than can be seen with the naked eye. Constitutional and climatic treatment should not be neglected; and the relation of mammary gland tuberculosis in the mother to tuberculosis in the offspring should always be borne in mind by the practitioner

[1] This Journal, June 11, 1898. [2] This Journal, June 25, 1898.
[3] American Journal of Medical Sciences, July, 1898.
[4] Quoted by Scudder, loc. cit.

### WHAT ARE THE SYMPTOMS OF NEPHRITIS?

A few years ago, when the microscope first began to clear up the mists which pervaded medicine, and when the excretions of the body received attention due them, many observers were not slow in finding in the sediment of the urine bodies which were denominated casts. Some observers went further than this, and a few years ago it was thought possible to differentiate the different varieties of nephritis by the kind of cast found in the urine, attributing the hyalin cast to the interstitial variety and the granular to the parenchymatous. But even before this time the urine had received attention, and albumin had been demonstrated by chemic methods. Clinical experience had told them of the pallor of the skin, of the hardened arteries and of the edema which was sometimes present.

Combining these facts obtained by clinical experience with the occurrence of albumin and casts in the urine it was thought that to make a diagnosis of nephritis was comparatively easy.

But anemia, high arterial tension and edema may be present in other conditions than nephritis, so they only form concomitant symptoms and the diagnosis hinges upon the amount of urine excreted and the presence of albumin and casts in the urine.

When albumin and casts were found in the urine it was thought that this indicated a pathologic condition of the kidneys, but this teaching is gradually being restricted, while some writers have not only given up the idea of making a differentiation of the varieties of nephritis by the kind of casts found, but claim that both albumin and casts are found, even though nephritis be not present. The combination method of Professor HAINES (*vide* JOURNAL, vol. xxx, p. 234), for example, will detect casts in urine normal to coarser tests. Clearly some one is wrong and it is due the profession to adopt some symptom-complex which will settle the question once for all.

It may be that in order to detect albumin some writers have used tests which are extremely delicate, so much so that the faintest trace may be found, while others rely upon the heat and nitric acid test, which is reliable enough for all practical purposes, and why should it be discarded for others which may throw a cloud about the final diagnosis? If casts are found in the urine in health why should we make a diagnosis of diseased kidney when they are present? Now if different varieties of casts are found in all cases of nephritis how can we say that the one is interstitial and the other parenchymatous?

It looks as though the clinical symptoms as observed by the naked eye are taking precedence over the results obtained by microscopic evidence, and clearly there is a fault somewhere. Why not let us say that if albumin is present by some standard test, it indicates nephritis, or if a certain prevailing variety of cast or some other body is found, it indicates the variety of nephritis? Evidence should not be very hard to obtain and is the duty of those who can do so to set this matter at rest.

### EUTHANASIA FOR CONDEMNED CRIMINALS.

In the various countries at different times diverse methods of inflicting death upon criminals condemned to die have been in vogue for greater or less periods of time. The cruelties of prolonged torture of barbaric days were succeeded by methods at once more rapid and necessarily less painful. Crucifixion with its hours of agony was supplanted by the headman's axe. The guillotine of France, the very name of which caused a shudder to run through civilized Europe, was decidedly less brutal than the cord. Humanitarians in general and many physicians are opposed to hanging as a way of inflicting capital punishment. If one were sure that the neck would always be broken in the drop, there would be some commendable features connected with it; but the sickening struggles of three, four, even five minutes before the attending medical man pronounces life extinct, cannot but make one feel that their sufferings are needless and cruel, no matter what their crime may have been. The gaping interest of curiosity seekers in those States where the execution is public; for the great numbers attending hangings, when they can get in, attest more forcibly than words that they derive some sort of entertainment from the spectacle, tends to degrade such persons to as low a level as the central figure of the scene. The latest substitute for hanging, electrocution, has not proved the unqualified success its promulgators had hoped. Death has but in few instances been instantaneous, and many cases stand before us of much longer periods of time used in the completion of the process than has been the case in hanging by strangulation. This delay in a majority of trials has been due to some defect in the apparatus or the interposition of some non-conductor to the electrical current. To be sure execution by this method is done in a comparatively speaking scientific manner, and is robbed of many of the horrors of the hanging, especially the morbid crowd of bystanders, but nevertheless some other method equally "scientific" should be substituted. The beheading with the axe would hardly suffer in comparison with this twentieth century brutality.

At the recent meeting of the Ohio State Medical Society at Columbus, one of the essayists offered in a serio-comic paper, a substitute for hanging and for electrocution, no less than causing dissolution by means of inhalations of chloroform pushed rapidly beyond safety, as indicated by pulse, respirations and pupils. The only objection the essayist could find to the scheme was that the victims would slip their moorings from this earth with thoughts far too pleasant for their hardened minds. This happy condition of affairs however, depends greatly upon the person giving and

the one receiving the anesthetic. One who has given anesthetics to any extent, knows how difficult the patient is to manage in the first stage. His struggles may become so great that four or five strong men may be needed to hold him on the table. We also know that in some cases, continuous saturation of the mask with chloroform is barely sufficient to keep them under, the chloroform apparently having little more effect than so much water; the very next case may be anesthetized easily and promptly, showing that the fault lies not with the chloroform, but in the individual peculiarity of the patient. It is needless to say that it might be rather difficult at times to encompass death in the former instance. Another point, it is against the law of many States for any one to administer an anesthetic except a regularly qualified physician. What physician would be willing to sacrifice himself to the rôle of public executioner? What would become of the practice of such a parasite? A doctor's profession requires him to save life, not take it. He would become so used to death under anesthesia that fatal results would come where he little wished them. To be sure the law might be amended to create the office of non-professional chloroform-executioner. But until incumbents of such offices received considerable training, the beneficent result of an easy, dreamy death as suggested by the essayist would not be forthcoming, for gradual perfect anesthesia is difficult enough in the most skilled hands. How would it look to have the catalogues of our medical colleges embellished with a heading something like the following: "Special Courses given to those who wish to enter the Public Service as Chloroform Executioner. Not necessary to take a course in Medicine."

The remarks of a member of the laity in regard to chloroform anesthesia would perhaps not be out of place (Mrs. KING in the Nineteenth Century for March). She had taken chloroform twice in England and oftener in India. In the latter country the anesthetic was given gradually with plenty of air under the rules as laid down by the Hyderabad commission, and she had never experienced any but the most pleasant sensations. In England, on the other hand, although she was anesthetized by one of the most skilled chloroformists in London, so little air was allowed her that she experienced all the horrors of impending suffocation, and thinks she would have perished had not her heart and lungs been physically sound.

Though the author of the above mentioned article, read at the State society, was not altogether serious in his remarks, nevertheless his subject excited considerable attention, as it is bound to do among all thoughtful persons both in and out of the profession. Substitutes other than chloroform were offered, but none that practice would be likely to prove always efficient, ever ready, painless. Perhaps one of the best was that the judge should sentence that the condemned man disappear from the eyes of his fellow men on such a day, and that an officer of the court be a witness of the fact and give evidence to that effect; a little hydrocyanic acid in the food and all is over. The terrible uncertainty of the condemned as to his ultimate fate, and the horror excited in the public mind at the very idea of poisoning would be the main difficulties to this scheme. The subject is one of importance to medical men, and it is to be hoped that it will be followed up at other meetings and something evolved which could receive the sanction of physicians generally, and by legislation prevent in time the needless barbarity of the present in the punishment of capital crime.

## THE HYGIENE OF MUSIC.

A witty popular writer makes the suggestion that with the growth of utilitarian ideals, music will gradually come to be looked upon, not as a dignified and civilizing art, but as a sort of minor vice; an amiable but enervating dissipation. While there is probably little chance that our ideals will become so completely utilitarian as he suggests, there is nevertheless something in the idea he advances that is perhaps worthy of consideration. It is certainly a curious fact that one form of sensual indulgence, or perhaps one might say more acceptably, sensuous enjoyment, and that as little utilitarian as any, if not absolutely of no value to the race and its continuance, should be lauded as in every way meritorious, even when excessive, while others of far greater real utility are considered, if at all overdone, as hardly respectable, if not absolutely disreputable. This is not because of its intellectual element, for it has as little of that as any form of sensory gratification; it is of itself free enough from any appeal to the intellect to meet the fullest demands of those critics who consider any excitation of the imagination as incompatible with true art. It appeals solely to the emotional and physical sides of our nature and it is a not unreasonable query whether, in so acting, its effects are always and in every way beneficial or desirable.

So much has been said of the therapeutic and generally salutary effects of music; its better side has been so industriously exploited, that it seems unnatural to most individuals to even suggest that it has in it any element of evil, any pathologic possibilities. It is nevertheless true that it has such, and that they are serious enough to be worthy of careful attention. It is not hard to see how and why this can be so if we consider the theories of the origin of music as given by those whose opinions are best worthy of respect. DARWIN's idea that it originates in the sexual impulse and is analogous to the love notes of song birds, is in itself suggestive of such possibilities, and the same is true of that of HERBERT SPENCER, who believes that it originated from the emotional cadences

of speech. WEISMANN has argued that music is a secondary effect on the organs of hearing induced by cultivation, and not in the regular order of nature; in other words, that it is abnormal, hence the ready deduction that it may be related to or give rise to various abnormal and undesirable effects. If we accept it, on the other hand, with WALLASCHEK, as satisfying a rhythmic impulse in our constitution, this really only accounts for one element in music, and that may itself have under some circumstances a morbid as well as a normal effect, and leaves all the others that have been built up upon it to be accounted for, with all their possibilities of good or evil. Taking it as we will and assuming whatever physiologic or other origin for music, there is nothing in it more than a gratification of the senses and an incitation of the feelings. It may be of service as an adjunct to intellectual excitation of the higher emotions as in religious music; it may of itself be soothing in certain conditions of morbid excitement, but it may also be the reverse. The modern classic music and the Wagnerian "music of the future," the degenerative tendencies of which have been so vividly depicted by NORDAU, are harder to justify as beneficial than is the simpler and more melodious music that appeals to the uneducated ear. It is hard, in fact, to see anything but a sort of intoxication in the mental state of some of the musical enthusiasts who go wild over WAGNER'S music, if we can interpret their ideas by the language they employ. It suggests at least a perversion of a sense, a morbid unnatural enjoyment.

Music in itself is not intellectual; its faculty is quite compatible with a profound degree of dementia, as is often shown in asylums and such musical prodigies as Blind Tom, but as an adjunct to poetry in song it often becomes so associated with ideas that we make the mistake of thinking it conveys them itself. As a stirrer of the purely unintellectual emotions it has no rival, and in these two ways lie its possibilities of mischief. Poetry itself is like music in that it appeals to the rhythmic impulse, but it also appeals to the intellect, and not merely to the emotions. Its unhygienic possibilities have long been recognized. One of the greatest poets has said that to appreciate poetry, a trace of morbid mentality was essential, and that this was still more the case to originate it. When music and poetry are combined as is commonly the case the appeal to the emotions is even stronger in many instances, and music without words is, from this common association, most often directly suggestive of ideas that may or may not be healthful.

The actual evil effects of music are less easy to trace because they are generally combined with other causes that get the credit of all the evil. One of the most eminent of English gynecologists has, however, protested strongly against the common practice of musical training of girls as especially disastrous in its consequences, and similar testimony might be obtained in other quarters. Music has been credited with the production of apoplexy and other nervous affections and is a recognized cause of insanity, though probably to a less extent than is really the case. It is easy to see how its excessive cultivation may be disastrous to hysteric and emotional individuals, and still more often to those who have any decided mental taint.

Music certainly adds much to the enjoyment of life, but it is not a virtue in itself and good as it is, it is liable to be overused and abused. Its hygienic requirements have received too little attention and its pathologic possibilities have been largely ignored. It has its uses in therapeutics, but they hardly outbalance the dangers of its overcultivation, which are real enough even with the simpler music of the past. What they will be with the "music of the future" is as yet an unsolved problem.

## THE WAR NEWS OF THE WEEK.

Public interest during the week ending July 16 centered in the surrender of Santiago, Cuba, and the outbreak of yellow fever among the troops investing the city. According to some of the dispatches the infection was brought to El Caney and Siboney by the many thousands of Spanish and Cuban refugees from Santiago; but inasmuch as General MILES considered it advisable to destroy all the buildings at Siboney by fire, it seems evident that this place must have been regarded by his medical officers as a focus of infection. Cases of fever were reported from the time of the first landing of the troops, but these were typhoid and malarial cases, with febrile conditions due to great fatigues and exposures alternately to excessive heat and to the chill of sleeping in wet clothes in the trenches. Ultimately, however, certain cases among men of the Quartermaster's Department, who had been most in contact with the refugees, were recognized as veritable cases of yellow fever; and immediate steps were taken to isolate the cases and prevent the extension of the infection to the troops on the line. On the first notice of the outbreak a large force of immune medical men and nurses, who had been held by Surgeon-General STERNBERG in readiness at Tampa, Florida, for a possibility of the kind, was immediately dispatched to General SHAFTER'S command. Meanwhile the reports from the front were discouraging. A special cable dispatch from Siboney to the *Washington Star*, July 14, represented Dr. NICHOLAS SENN as of opinion that in two weeks 25 per cent. of the troops would be *hors de combat*, the sanitary conditions being the worst he had ever seen. Dr. GUITÉRAS, also, was represented as being discouraged. "There are two hundred fever cases here," said this Siboney dispatch, "the majority from the trenches where men sleep night after night in water." The El Caney situation was reported as grave. "There are many cases of fever and great mortality among the people, who are dying from exposure and privation." Santiago

was represented in all the dispatches as in a most insanitary condition with many of the Spanish troops suffering from fever. But official dispatches from Colonel GREENLEAF, Chief Surgeon on the Staff of General MILES, do not sustain this exaggerated view of the outbreak. On July 16, his statement was: "Only 23 new cases of yellow fever and 3 deaths reported in the last 24 hours; general type of the disease mild; camp sites moved whenever practicable; have taken vigorous sanitary precautions to check the spread of the disease." And on July 16: "Only 16 new cases and 1 death." This is a very grave condition of affairs, but now that the surrender has taken place the troops are in a position to devote the whole of their energies to their protection from infection. The high grounds back of the city are represented as affording dry and well drained camp sites with pure water supplies from mountain streams and the heat tempered by breezes from the sea. Prompt removal of an infected individual to the hospital and prompt removal of a command from an evidently infected camp will, it is hoped, suppress the disease and enable the regiments in a short time to be embarked in as perfect freedom from infection as from a detention station on our own shores.

To meet the possibilities of the future, however, Surgeon General STERNBERG spent some days in New York making arrangements for further strengthening the immune hospital force and providing it with all necessary supplies. On July 16 the Naval Ambulance Ship *Solace* and the transport *Olivette* arrived from Santiago, the former landing sick and wounded soldiers at the General Hospital, Fortress Monroe, Va., and sick and wounded Spanish prisoners at the Naval Hospital, Norfolk, Va.; while the latter, carrying 250 wounded men, was detained off the Quarantine Station at the port of New York by Dr. DOTY, Health Officer, pending an inspection of the condition of the men and the vessel. In this connection, also, the press reports of the terrible conditions existing on the steamer *Harvard*, which brought 1000 prisoners to Portsmouth, are said to have given rise to the keenest apprehension in the Navy Department; but should it be found that yellow fever exists among these prisoners, there ought to be no difficulty in managing it on the New England coast.

Meantime the camps in this country appear to show a decided increase in the prevalence of typhoid fever. Lieutenant-Colonel SMART was called upon to make a careful inspection into, and report upon, the sanitary condition of Camp Alger, Va., giving special attention to the water supply and to the etiology of cases of typhoid fever occurring in that camp, and to Deputy Surgeon-General WOODHULL was assigned the duty of making a similar investigation at Chickamauga Park, Ga., while Major P. R. EGAN has been endeavoring to determine the conditions conducive to the prevalence of typhoid fever in the Fourth Army Corps at Tampa, Fla. This activity and earnestness on the part of the Medical Department will tend to restrict the ravages of this indigenous camp disease which, although attracting much public attention, is by no means so prevalent as it was in the camps of the early months of the Civil War, July and August, 1861.

### TAXING ANTITOXIN.

There is a seeming tendency on the part of certain internal revenue officers to insist that antitoxin comes under the category of the remedies affected by the stamp tax. It is difficult to see how this conclusion can be drawn from the terms and definitions of the recently passed internal revenue law. It is neither a copyrighted remedy (having been presented free, in accordance with the high ethic instinct of the medical profession, to suffering humanity), nor is it a secret preparation put up by pharmacists to resemble copyrighted preparations. Under no construction of the law can it be brought into the category of the class of preparations which congress intended to tax: that is, preparations prepared according to a secret formula guarded by copyright or otherwise for the benefit of corporations of individuals. It is possible, however, that the revenue officers have confounded the antistreptococcic and antidiphtheritic serums with a British proprietary preparation which may fall within the category of the law, but is a totally different preparation. The discussion in congress on this branch of the revenue law clearly showed the legislative intent so far as the taxation of proprietary preparations was concerned. To tax antitoxin in the way proposed would violate not merely the spirit but actual text of the internal revenue act. It will probably be sufficient to indicate these facts to internal revenue officers to avoid such taxation.

## CORRESPONDENCE.

### Ether Vapor as a Diagnostic Agent.

PEORIA, ILL., July 11, 1898.

*To the Editor:*—About a year ago I began experimenting with ether as a means of diagnosis of intestinal perforations, and concluded that it would be much more practical and better than hydrogen gas, as advocated by Professor Senn, since it is always at hand and necessitates no special apparatus, aside from what is already found in the surgeon's possession, and further, no objections can be given to its use on account of noxious properties, unfounded as these objections may be as to the hydrogen gas. The quantity of ether being infinitesimal (℥j or less being sufficient to give up the necessary vapor, which is diluted many, many times by the air that carries it) absolute freedom from anesthesia is assured. The method is simple: A small quantity of ether is poured into the bottle accompanying the aspirator of so-called French pattern. A soft rubber catheter, or rectal tube (preferably a long glass douche tube connected by rubber tubing), is jointed to one of the pipes of the aspirator bottle. The air-pump is joined to the other pipe, and air forced into the bottle becomes mixed with ether vapor and passes on through the alimentary

canal, the rectal tube being inserted as far as necessary. This mixture, which may be called ether-air, rapidly finds its way through the coils of intestines, giving forth strong rumblings as it progresses onward, causing distension on entering the stomach, from whence it is belched, provided no perforation exists along its pathway. Upon reaching a perforation, however, the ether-air escapes into the peritoneal cavity, tympanites more rapidly develops, and upon dilating the wound entrance down to the peritoneum quickly comes out into the world, being at once recognized by its odor and the hissing sound of escaping gas. Upon opening the abdomen the distension of the intestine from the rectum up can be followed to the point of injury where the same odor and hissing are noted and the wound repaired. Continuing the search till no more ether-air is found escaping from the intestines we may rely upon its efficacy.

*Case 1.*—Dog, thirty pounds; shot through abdomen. The rectal tube was inserted and ether-air forced in. A rumbling along the colon could be followed to the small intestines when tympanites rapidly developed (dog was stimulated by the ether to renewed but weak struggles, although the first shot fired was too high, piercing the heart, the second shot taking effect antero-posteriorly at the middle of the abdomen). At the wound entrance, skin only being enlarged, ether-air escaped quickly with a hissing noise, proving the existence of perforation. The abdomen was opened and three through and through perforations of the small intestines found and four others with only one portion of the gut pierced, each perforation giving out ether-air as the proximal perforations were closed.

*Case 2.*—Dog, forty pounds; shot in abdomen. A tube was placed in the stomach and the stomach rapidly dilated and the vapor passed a short distance. Tympanities developed rapidly. The abdomen was opened and perforation quickly found in the duodenum.

It might be urged that the rectal administration of such a powerful anesthetic would be fraught with serious dangers, but the quantity of ether is so very small that the small amount of ether vapor given off from it is insignificant in effects, aside from those decidedly beneficial, stimulating the dying to renewed struggles and soothing the system preparatory to treatment.

*Case 3.*—Live puppy, three pounds. Ether-air was forced through the rectum and out the mouth continuously for an hour. No effects were produced aside from a sense of fullness and seeming happy satisfaction with the overloaded alimentary canal. This process could have continued for unlimited time, but one hour and no anesthetic effects satisfied us there would be none. EMERSON M. SUTTON, M.D.

### Precocious Pregnancy.

CLEVELAND, OHIO, July 16, 1898.

*To the Editor:*—The letters in the last number of the JOURNAL, on "Precocious Pregnancy," remind me of a case that I saw a couple of years ago. Through the courtesy of my friends, Dr. and Mrs. Lukens, I learned the personal history of the case. The girl menstruated first at the age of 11 years and three months. She immediately became pregnant and was delivered at full term by a rather tedious delivery, although otherwise normal, of a large, well-developed child. Both mother and child did well. The father, at the birth of the baby, was just 14 years old. Sincerely yours.

N. STONE SCOTT, M.D.

### Alcohol Injections in Hodgkin's Disease, Etc.

ST. LOUIS, MO., July 13, 1898.

*To the Editor:*—The undersigned is preparing a paper on his experience with injection of alcohol in cases of Hodgkin's disease and cancer of the stomach and for the present will only say that the results thus far have been very encouraging. In due time he will send you a full report for publication.

Respectfully, A. F. BOCK, M.D.

### Reply to Professor Klebs.

CHICAGO, July 19, 1898.

*To the Editor:*—The following is the reply I wish to make to Professor Klebs' letter beginning: "In consequence of the surprising declaration of Dr. Murphy that tuberculosis of the lungs can be cured, etc."

Professor Klebs has never seen my article, therefore he knows neither my conclusions nor the work on which I base those conclusions, therefore, his letter has no scientific value in connection with my paper. The paper is now appearing in the JOURNAL. I trust that those who have read Professor Klebs' letter will read the paper most carefully.

Very respectfully, J. B. MURPHY, M.D.

## BOOK NOTICES.

**The Extra Pharmacopeia.** Revised in accordance with the "British Pharmacopeia" in 1898. By WILLIAM MARTINDALE, F.L.S., F.C.S. Serotherapy, Organotherapy, Medical References and the Therapeutic Index. By W. WYNN WESCOTT, M.B. Ninth Edition. Price 10s. 6d.

It must be a sad sight to those writers in this country who have always opposed the decimal system to find that British Pharmacopeia now adopts a dual system of weights and measures in all its formulæ except those employed in testing. The British Pharmacopeia states: "The alternative employment in the British Pharmacopeias of 1867 and 1885 of metric weights and measures in the paragraph relating to volumetric analysis is not extended to every official paragraph which makes reference to the usual Imperial weights and measures but the metric system alone is employed in all paragraphs relating to analysis whether the gravimetric or volumetric. During the period of transition from the Imperial to the Metric system a certain amount of confusion is likely to occur."

The editor of this work, Dr. Martindale, says, "To aid the transition, therefore, and to avoid confusion as much as possible we have in a measure followed the commendable precedent of the first official German Pharmacopeia, and of the United States Pharmacopeia of 1883. In either of these with few exceptions parts by weights were employed.

"We have further given in the body of the work the approximate doses of each drug and preparation in terms of the metric system. In further trying to think in the metric system, prescribers may consider the English grain as 65 milligrams (0.065 grams) and 1½ grains as 10 centigrams and 18 minims as approximately 1 cubic centimeter. Following the U. S. Pharmacopeia we have abbreviated the word gram to Gm. and the words cubic centimeter to Cc. The contraction gm. being printed in heavier type and with a capital initial letter, and we recommended it to be written, will distinguish it from gr. the usual contraction for grain. We trust that our readers may soon be able to become familiar with the quantities and doses in terms of the metric system, which it is hoped will ere long supersede the old system. Probably the greatest difficulty will be the introduction of conveniently sized medicine bottles to contain the metric equivalents of the household measures, teaspoonful and tablespoonful."

This work will be found very valuable, especially in regard to the therapeutic uses of the new remedies and the antitoxin.

**Transactions of the New York State Medical Association,** for the year 1897. Vol. xiv. Cloth. Pp. 646. Published by the Association, New York City.

This volume is edited for the Association by E. D. Ferguson, M.D., and comprises thirty-two papers by leading practitioners; also lists of officers, committees, Fellows, reports of the District Branches, the New York County Medical Associa-

tice, necrology and organizations affiliated with the State organization.

Perhaps with the standards of literary and scientific excellence expected from this Association at the start, some of these contributions to the relief of bellicose New Yorkers might have been omitted. Still the controversialists of both sides will have excellent entertainment in the lazy days of vacation. Dr. E. H. Squibb gives his "Brief Comments on the Materia Medica, Pharmacy and Therapeutics of the year ending October 1, 1897." Besides the classical address of the President, Dr. Charles Phelps, there are valuable papers by the editor, Drs. Douglas Ayers, Charles E. Lockwood, J. D. Bryant, Parker Syms, Frederick S. Dennis, Ely Van de Werker, A. Palmer Dudley, Ira Van Giesen, George T. Harrison and H. D. Didama. The article on "Medical Expert Testimony," by Dr. H. O. Jewett, is timely, and another by Dr. Samuel W. Smith, on "Acute Catarrh of the Middle Ear as a Sequel of La Grippe," is more than suggestive. Three active members, usually well represented by papers at nearly every meeting, have been removed by death, to-wit, Drs. Wm. T. Lusk, J. Lewis Smith, and W. H. Robb. Of the former, two memorial tributes have been added by Drs. Austin Flint and John Shrady. Much more in praise might be written, but future readers, as well as the affiliated State societies, may expect to be gainers in reprints, journal abstracts and attractively bound volumes. The New York State Medical Association has a just conception of its duties and responsibilities.

**Cardiac Failure and Its Treatment,** with especial reference to the Use of Baths and Exercise. By ALEXANDER MORISON, M.D., Edinburgh. Pp. 256. London: The Rebman Publishing Company. 1897.

"It is the peculiar merit of those who are responsible for the attention now given to the balneologic and gymnastic treatment of chronic heart disease that they have extended into the domain of active therapeutics, and during the progress of cardiac failure, the roborant influences of that exercise which formerly and in greatest measures found its place in the period of convalescence."

It is well known to every practitioner that many cases of heart disease are apparently conducive to longevity, for they induce less carelessness of diet, regular habits of life and such exercise that the patient lives to a green old age, notwithstanding the existence of his affection. Schott and others have held conclusively that the enfeebled heart may be strengthened in suitable cases by baths and gymnastics and skilfully administered exercise.

This book enters fully into the details of this form of treatment. The illustrations are clear and fully illustrate the work. The pathology of the affection is given from the standpoint of the modern physiologist. We recommend the book as being in every way satisfactory.

**Notes on Military Hygiene for Officers of the Line.**—A Syllabus of Lectures formerly delivered at the United States Infantry and Cavalry School, by ALFRED A. WOODHULL, LL.D., Lietenant-Colonel, Medical Department, U. S. Army. New edition, revised and augmented. Pp. 181. New York: John Wiley & Sons. London: Chapman & Hall. 1898.

"These notes," says the author, "represent the essence of the lectures on military hygiene delivered to the class of 1889 at the Infantry and Cavalry School. It was originally prepared for the convenience of the student officers, but it was afterwards thought that it might be acceptable to officers of the line generally. The new edition changes the original edition to correspond with the present army regulations and the progress of sanitary science."

The volunteer officers, particularly of the Medical Department as well as the line, will find very much useful information in this work. Indeed, it will be well nigh indispensable to those for the first time having the responsibility and care of troops.

**Atlas and Abstract of the Diseases of the Larynx.**—By Dr. L. GRUNWALD of Munich. Authorized translation from the German and edited by Charles P. Grayson, M.D. 107 colored figures on 44 plates. Philadelphia: W. B. Saunders. 1898. Price $2.50 net.

"This Atlas," says the translator, "exemplifies a happy blending of the didactic and clinical such as is scarcely to be found in any other volume on this subject with which we are acquainted. It is upon the value of the clinical portion of the work that the editor would dwell with particular emphasis."

. . . . .

The beginner will find here a series of pathologic conditions illustrated with a remarkable fidelity to nature, "that it would require him a number of years to duplicate in actual practice, while the veteran, however rich his experience, will note a precision, a *finesse* in diagnosis that can not fail to be instructive, perhaps even inspiring."

Most of the illustrations were prepared by the academic painter, Mr. Keilitz, from sketches or preparations by the author.

**The Methodist Episcopal Hospital Reports.** Volume i. 1887-1897. By LEWIS STEPHEN PILCHER, M.D., GLENTWORTH REEVE BUTLER, M.D., New York. Published by the Hospital in 1898.

The book is divided into four parts, viz.:

Part I. 1. Historical Notes, by John Storry Breckinridge, M.D. 2. The Building and the Administrative and the Medical Organization of the Hospital, by Eugene Allen Noble. 3. List of the officers and others connected with the Hospital from its organization.

Part II. Surgical Reports. This comprises various surgical essays, by Lewis Stephen Pilcher, M.D., George Ryerson Fowler, M.D., James P. Warbasse, M.D., Thomas Bray Spence, M.D., Charles Henry Goodrich, M. D., Henry Goodwin Webster, M.D., William Nathan Belcher, M.D.

Part III. Medical Reports. By Alexander Ross Matheson, M.D., Glentworth Reeve Butler, M.D., William Nathan Belcher, M.D., Ralph Melville Mead, M.D., Frank Whitfield Shad, M.D., Arthur Henry Bogart, M.D., Charles Richard Butler, M.D., Henry Goodwin Webster, M.D., Raymond Clark, M.D., Henry Pelouse de Forest, M.D.

Part IV. Pediatric Reports. By John Biou Bogart, M.D.

The Hospital was opened for the reception of patients, Dec. 15, 1887, and this report is a record of the decade of hospital work. The book is handsomely printed.

**Atlas of Legal Medicine.** By Dr. E. VAN HOFMANN. Authorized translation from the German, edited by FREDERICK PETERSON, M.D., assisted by ALOYSIUS P. J. KELLY, M.D. Fifty-six plates in colors and 193 illustrations in black. Philadelphia: W. B. Saunders, 1898. Price $3.50 net.

The illustrations in this work are original, having been prepared from recent cases or from museum specimens. The volume is made up chiefly of photographs and drawings of various lesions and pathologic conditions taken from actual cases such as would take one many years to acquire unaided. The illustrations cover suffocation, criminal malpractice, injuries of the brain, fracture of the skull, poisoning by mineral acids, arsenic, etc. This reference atlas will be found invaluable.

## ASSOCIATION NEWS.

**Medical Colleges.**—The Permanent Secretary has issued the following circular:

PHILADELPHIA, June 30, 1898.

*Dear Sir:*—At the recent meeting of this ASSOCIATION the following was unanimously adopted:

WHEREAS, the AMERICAN MEDICAL ASSOCIATION did, at Detroit in 1892, unanimously resolve to demand of all the medical colleges of the United States the adoption and observance of a standard of requirements of all candidates for the degree of doctor of medicine which should in no manner fall below the minimum standard of the Association of American Medical Colleges; and

WHEREAS, this demand was sent officially by Permanent Secretary to the deans of every medical college in the United States and to every medical journal in the United States, now therefore the AMERICAN MEDICAL ASSOCIATION gives notice that hereafter no professor or other teacher in, nor any graduate of, any medical college in the United States, which shall after January 1, 1899, confer the degree of doctor of medicine or receive such degree on any conditions below the published standard of the Association of American Medical Colleges, shall be allowed to register as either delegate or permanent member of this ASSOCIATION.

*Resolved*, that the Permanent Secretary shall within thirty days after this meeting send a certified copy of these resolutions to the dean of each medical college in the United States and to each medical journal in the United States.

Respectfully yours,

WM. B. ATKINSON, Permanent Secretary.

Please acknowledge receipt of these resolutions.

## The Columbus Meeting.

COLUMBUS, OHIO, July 13, 1898.

*To the Editor:*—We have at once entered actively upon the preparation for entertaining our guests, the AMERICAN MEDICAL ASSOCIATION, in 1899, and can assure them we will leave nothing undone which can contribute to their comfort. Our hotels are as anxious as we are that the meeting shall be a grand success. They offer the following rates and accommodations respectively; Great Southern, rates $2.50 to $400, American plan. Chittenden, $2.50 to $4.00, American plan. Neil, $2.50 to $3.00, American plan. Park, $1.50 to $2.50, American plan. Davidson, $2.50 per day, American plan. Hotel Goodale, .75 to $1.00 per day for room, European plan, first-class restaurant attached. Smith's European, $1.00 to $1.50 per day per room, European plan, first-class restaurant attached. Normandie, $1.50 per day, American plan. Norwich, $1.50 per day, American plan.

In addition to these regular hotels, we have a large number of strictly first-class boarding-houses where many guests can find economical and comfortable accommodations. A careful canvass of the above hotels mentioned, assures us that they can comfortably accommodate 2500 guests, and with our other facilities we will have no trouble in comfortably entertaining all who will come.

STARLING LOVING,
Chairman Committee of Arrangements.

## The Denver Meeting—Comments of the Medical Press.

AND the same day it rained—and the next day—and the day after.

The registration amounted to over 1,300, second, we believe, only to the semi-centennial at Philadelphia, which it was hardly expected to excel. The opening general session was marked by lively interest and good fellow feeling. The remarks of Governor Adams, while amusing, were tinged with truth. The address of Surgeon-General Sternberg did not, of course, receive the same consideration as if he had delivered it in person. But as the reader of the paper, Lieut. Woodhull, remarked, the possibility of absence is one of the penalties that must sometimes be paid when high-grade men are chosen for such offices. After the first day the attendance at the general session was not nearly what it might have been to attain the best results for the good of the society. For example, a total vote counted at mid-session on the second day numbered only 216. However, our visitors from the east can hardly be blamed for wishing to see new sights rather than to listen to discussions on topics that may be more or less stale to them. Besides it will all be in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. . . . The final general session was enlivened by a heated discussion over the long mooted question of the admission of the heretical New York societies. The Philadelphians made a gallant stand for the affirmative, but the self-styled conservatives were in the majority against them. As a matter of fact there is a great deal of sanctimonious cant about the Code, and those who preach it most loudly are as a rule the ones that practice it least. The practical details of the Code are almost never observed. For example, is there one physician in a thousand who, when called to supersede another in a given case, assures himself that the former attendant has been paid in full for his services? When we take a bird's-eye view of the Code it appears to us much like a placard asking *gentlemen* not to spit upon the floor. In the sections is where the actual work of the Association is accomplished. Here meet the gray-bearded octogenarian and the beardless boyish graduate, the man of brains and the man of skill and the man who has neither—all brought together in the wholesome fraternal occupation of giving and taking information. Here may be found a congenial atmosphere for all sorts of souls—from the village-prayer-meeting-like quiet of dietetics and physiology to the rousing and militant acclaim of surgery. And now why was it that the gynecology and surgery sections attracted more of an audience, perhaps, than all the other sections put together? Is it that we are all becoming specialists, or is it rather that the general practitioner seeks in such sources the secret of that prestige which has not been his? . . . . The few resolutions that were introduced in general sessions were, generally speaking, both timely and proper. One of the most noteworthy was that by Dr. Gould, favoring the establishment of medical libraries throughout the country. The seven years of labor for a National cabinet department of public health should be furthered to its goal by the thousand-dollar appropriation for the special committee on this department. Dr. Sanders' resolution for a National public health system, applicable to all parts of the United States, had its special object lesson no doubt, in the yellow fever imbroglios of the past summer.—*Denver Med. Times.*

THE meeting of the American Medical Association held at Denver during last week can not be regarded as other than most successful. The fact that many of the local medical men originally came from the east led to the renewal of many old acquaintanceships, and this, combined with the hospitable welcome extended by the citizens of Denver, increased the feeling among the visitors that they were indeed at home. Then, too, the situation of the "City of the Plains," surrounded as it is by many features of peculiar interest to medical men, served to stimulate the activity of body and mind and to give the proceedings, scientific and social, a zest not to be found at less favorable meeting-places. The railroad and hotel accommodations were unusually good, and thus one of the most common sources of dissatisfaction was avoided, while the good-will of the visitors was obtained at the start by the efficient methods instituted for the registration of members. The meeting-halls were conveniently situated, unusually large and well ventilated, and with few exceptions their acoustic properties were good. The meeting was also very representative of the Association as a whole, for all sections of the country sent delegates to represent their views, with the result that the proceedings really represented the National profession as a whole. This general representative meeting, therefore, far surpassed in importance to the profession some of its predecessors which have had a local color, and emphasizes the fact that the American Medical Association is becoming more powerful for good in the medical affairs of the country. Sectional differences are disappearing, and politics, while active, is gradually decreasing in importance as scientific pursuits become more popular. An innovation of importance was that of asking most of the members in Denver on Monday night to the dinner tendered to the Medical Editors' Association. By this means the whole assembly started with a swing which carried it through the meeting, and friendships were formed which did much toward increasing the good feeling which was so apparent on every hand. The work of the general sections was good, and the papers in many instances were discussed in a manner which showed that their hearers had ideas worth expression and worthy of respectful attention. This was particularly true of the sections on medicine surgery and gynecology, in which animated and spirited debates were constantly going on. Aside from the general educational effects of the meeting there can be no doubt that it will exercise a good effect by informing many physicians of the exact therapeutic properties of the Colorado climate; for the program prepared for the entertainment of visitors was designed by the railroads and hotels to advance one's views of the possibilities of the consumptive's paradise.—*Med. News, N. Y.*

BUT the features of the Denver meeting that will stand out most strongly in the memory of those who attended it were the entertainments and excursions. These began with the arrival of visiting members, but first rose to full dignity and form in the dinner of the American Academy of Medicine on Saturday evening, when the Governor of the State and the heads of the Colorado State University, of Boulder; the University of Denver, and the Colorado Springs College, and the President of the Woman's Club of Denver, with the fellows of the Academy responded to toasts, and between the toasts the whole company, nearly half ladies, joined in singing college songs. Sun-

day, the entertainments were quieter but none the less enjoyable, Monday evening they blossomed out in the Medical Editors' banquet, with Hare to preside, and Patterson of the *Rocky Mountain News*, Love, Mercy, Keen, N. S. Davis, Jr., J. W. Holland, J. M. Matthews, Hamilton, Wheaton and others to respond to toasts. Tuesday evening the Section dinners were more largely attended than they ever have been before, over 500 members of the Association joining in them, 175 at the joint dinner of the Sections on Surgery, and Obstetrics and Diseases of Women, 83 at the dinner of the Section on Stomatology. Thanks to the efforts of Dr. E. C. Rivers and others who had the matter in charge, the future of the section dinner is assured. Wednesday evening came the great reception given by the Colorado State Medical Society at the Brown Palace Hotel, and Thursday evening the receptions by the Denver and Arapahoe County Medical Society at the residence of its president, Dr. E. P. Hershey, and at the residences of other prominent citizens of Denver. On Friday an opportunity to study climatology was given in an excursion up Clear Creek Canon to Silver Plume, 9200 feet above sea level. Over 1700 doctors and members of their families were handled in seven trains on this narrow gauge railroad, given a lunch at Idaho Springs of full Western quantity and that would rate as of first quality in any Eastern city, and treated to some of the grandest mountain scenery in the world; and everything moved with perfect smoothness, to the complete satisfaction of the guests.—*Phila. Polyclinic.*

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After a year of tedious detail work and much anxiety the Denver meeting came, and has gone into the past. Over 1500 physicians from all parts of the United States were in attendance, and over 500 ladies accompanied them. . . . The first of the mountain outings, which came as a relaxation after the heavy scientific work of the week, was the trip over the Loop which gave the doctors and their friends a very startling introduction to mountain scenery. The trip up Clear Creek Canon is one of continuous delight and amazement, and the "Kodak fiend" was kept busy trying to get a snap at all the beautiful views. Impressions, whether good or bad, of Colorado, were carried away that day by the wholesale. Our visitors had already marveled at Denver's hospitality, but the reception given them at a stop-over at Idaho Springs, only added to their incredulity. The people of that town were fairly teeming with hospitality and from the time the guests entered the town until they left, they owned the place, and a visit from Li Hung Chang himself couldn't have aroused more enthusiasm, in the townspeople than did these visitors. . . . One day in the mountains only whetted their appetite for more and the trip to Colorado Springs the following day was just as well patronized. The Colorado Midland and the Denver and Rio Grande carried about 1500 doctors and their friends to the Pike's Peak region, and Colorado Springs people served luncheon to the guests at the Coburn Library; then the guests were taken to the various points of interest and the day was ended by a grand ball at Manitou. Then came a general scattering to Cripple Creek, Glenwood Springs, Salt Lake and other places. The quiet lull that has settled over Denver is the natural consequence of the week of excitement which kept every one busy and active. The profession of Denver and Colorado have enjoyed entertaining the visiting brethren, and they feel well repaid for the energies put forth which has made the meeting the grand success every one pronounces it to be. The only complaint heard is that Denver has set a pace for hospitality and entertaining which will be hard for the other cities who entertain the American Medical Association in the future to keep up with. —*Colo. Med. Jour.*

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The meeting of the American Medical Association in Denver this year was an important event in the affairs of the local profession and the visitors were very handsomely entertained during their sojourn in Colorado. While the number in attendance was far below what was expected, yet the meeting as a whole was considered fairly successful. The arrangements of the local committee were very complete and gave entire satisfaction to their guests. The work of the Association seemed to be well in hand and, except an occasional ripple, everything went along smoothly enough. The question of admitting the wayward New York brethren was revived by Dr. H. A. Hare, on the third day, and but for the fact that the presiding officer ruled the doctor out of order, after a very heated discussion, it is doubtful what the result of a vote would have been. Certainly the house seemed about evenly divided. The most notable paper presented at this session was one by Dr. J. B. Murphy of Chicago, on the "Cure of Consumption by Compression of the Lung." This was indeed a very interesting feature of the meeting and one well calculated to elicit immediate and universal attention. Dr. Murphy's claim that he had and could cure pulmonary tuberculosis by compressing the lung through the introduction of nitrogen into the chest cavity in such quantity as to give the lung tissue complete rest for a few weeks, was a startling proposition and created great enthusiasm. The subject is too new for intelligent discussion at this time, but the doctor is confident in his premises, which, he says, are based on successful experimentation. Should his claims be substantiated, some queer conjectures and deductions must follow in regard to prevailing theories regarding tuberculosis, and especially in regard to the germ theory.—*The Critique* (homeo.).

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The Denver meeting of the American Medical Association was in many respects one of the most enjoyable meetings ever held by that body. The profession and people of Denver did everything to make the meeting the grand success which it proved to be. The dinners, receptions and entertainments were of a very high order and unusually enjoyable, but there is a growing feeling that these entertainments should be curtailed, as they take a great deal of time that might be employed to much better advantage in the work of the Association. The suggestion made in the Journal of the American Medical Association that the general sessions be held at night, in lieu of the receptions, strikes us as a good one. . . . The large number who attended the Denver meeting shows what great interest the profession at large feel in the American Medical Association to go in such numbers to such a distance to attend the meeting. It is a very great privilege to be a member of the American Medical Association, and while the Association is growing in strength and numbers every year, it should include in its membership every reputable physician in the United States. By becoming a permanent member one avails himself of all the privileges of the Association and gets one of the very best medical journals, if not the best, published in the United States, all for $5.00 per annum.—*Atlanta Med. and Surg. Jour.*

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There are three things which prompt a physician to leave his practice for an extended trip to attend the meetings of the American Medical Association,— interest in the scientific work of the Association, the pleasure of meeting old friends and seeing and hearing prominent men of the profession, and the enjoyment of travel and a visit to new parts of the country. In all these particulars the Denver trip has been eminently successful, and I have yet to hear of anything but praise for the forty-ninth annual meeting. We had all heard of the climate of Colorado, yet we began to hear of it anew as soon as the limits of that State were reached. Everybody praised it, everybody asked how you liked it, and every local man in every speech or public utterance laid stress upon it. . . . Yet there was one thing in greater abundance than the climate, and that was hospitality. Nothing more could have been done for the entertainment of the visitors. Receptions and excursions were almost too abundant. A desire to enjoy them at times interferred with the attendance upon the sessions of the Association, and on Friday, at the closing general meeting, there was but a corporal's guard of those interested in the politics of the A. M. A. It is no easy task to arrange for the entertainment of 2000 people, yet the work of the various committees was admirable. To be sure there will be some among such a large number of guests who fail to appreciate the hospitality, and show by their actions their lack of good breeding. To my knowledge there were few examples, but one was at the reception tendered to the ladies and the visit to the smelter. . . . Some of the visitors failed to appreciate the labors of the committees and objected because the street cars were not free, and two, to my personal knowledge, made a decided kick against paying two dollars and a quarter for a dinner, room and breakfast in a six-dollar-a-day hotel, saying that they had been told the rate was but two dollars. These trivial things must be expected, and but serve to add a sort of spice to the general enjoyment. Speaking of hotels, there are in Denver good hotels and bad ones, and it may be that because my acquaintanceship is limited, I met more people who had the bad ones. There was a good deal of complaint at three or four of the hotels over the accommodation and the table, and some who were paying $3.00 and $3.50 per day even went to restaurants to get a square meal. I know I did, and had it not been for the generous banquets on the first two nights, and the hospitable receptions following, I should have left Denver hungry. . . . The program for the different Sections was very full, and had there been in attendance as many as were there represented there would not have been time for each paper, but many of the prominent men whose names appeared were not present. The character

of the work done was of the highest order, and although no strikingly new theory was presented, the discussions were animated and profitable. Dr. J. M. Mathews of Louisville, Ky., was elected President for the ensuing year, and Columbus, O., was selected as the next place of meeting. Apparently such a program was cut and dried for the occasion with all the quickness of the drying powers of Colorado air, for there was no opposition. This is as it should be; politics should have no place in the A. M. A., but nevertheless it usually has an important one.—*Atlanta Med. Weekly.*

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THE Denver meeting of the American Medical Association will forever live in the memory of those who were in attendance as the most complete in every detail in recent years. While the Philadelphia meeting may never be surpassed in the magnitude of work accomplished and the number of physicians present, yet in the uniqueness of the manifold attractions aside from the scientific work of the meeting, Denver seemingly has capped the climax. This is largely the result of the peculiar, favorable location and the bountiful spirit of hospitality, for which the Denver and Colorado profession are well-known. The success of the Denver meeting is due primarily to the local committee of arrangements, in Denver, which, under the wise and pushing direction of Dr. Graham, successfully engineered this most gigantic undertaking in a way that will forever redound to the credit of Western medicine, and Denver hospitality in particular. Denver, certainly is the Queen City of the West, and the grand State of Colorado a State of great and unlimited resources. But above all, it is the climate with which this State is blessed which makes it of interest to physicians, for it says to the weary and afflicted of the East, come and rest in the God-given sanitarium, where health will be given you and wealth, too. if in patience and good-will you but pursue the even tenor of your way. The evidences of the good that comes from a change of residence to those afflicted with pulmonary disease is apparent in almost all localities of Colorado. And such cumulative revelations appeal to physicians, and give to them renewed hope for the many cases constantly coming under their observation. The American Medical Association naturally must feel under lasting oblications to their Colorado brethren for the opportunity of meeting in Denver, just for this one impressive fact alone. The main interest of the physicians in attendance, however, was centered in the work of the Association, which was characterized by an abundance of scientific papers and thoroughness of their discussion in the several sections. In the general sessions many important measures were adopted, the chief of which was the determination to bring within the domain of standard recognition certain medical colleges which have, thus far, failed to qualify, and the means adopted was that of barring from membership in the Association members of the faculty of these schools, which fail to conform to the requirements of the Association of American Medical Colleges. The attempt to reconcile the Medical Society of the State of New York with the Association failed once more, and as a result this old sore must continue to suppurate until some wise measure may, in the future, be adopted which will give to the Association the valuable membership, which must come when peace shall be declared between these bodies. . . . Taking it all in all, we hardly expect to see the like of the Denver meeting again. It was unique, superb and scientific, and all who attended were well repaid many times over for the time and money spent in the pursuit of knowledge, experience and a good time. . . *Med. Fortnightly.*

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UNDER the lengthened shadows of the Rockies lies the most beautiful and charming city of the Union, Denver, the pride and glory of Colorado and the modern Palmyra of the plains. One does not tire in looking on its magnificent structures, public and private, nor can he repress surprise and admiration, if he would, at the spirit and grit of the citizens, who allow no obstacle to bar the way to a still higher eminence which becomes more pronounced as the years throw into her lap the wealth that still flows from the ores mined in the neighboring hills. As its climate is invigorating, so is the spirit that has reared on the western plain a city that rivals that of "the Chaldees' excellency." Thither went the leading lights of the profession, in the first week of June, from every State in the Union, and there gathered in associations that have for their object the highest interests of the profession as well as those that are related to the welfare of others. The American Medical Association was the chief magnet around which gathered others whose aim and work looks in the same direction, chief of which was the Association of American Medical Colleges. Its aim and work are of no less importance, because primary and fundamental, preliminary to that of the Association of physicians. The two associations are very closely connected, and each endeavors to contribute to the efficiency of the other. This was shown by an action of the Medical Association when it adopted a course of action which excludes from its membership the professors of any medical college which does not make its entrance requirements and terms of instruction conform to those prescribed for its membership by the Association of American Medical Colleges. The result of this action will be that no professor of a college can become a member of the American Medical Association, nor the college in which one is a professor become a member of the Association of American Medical Colleges, unless the college adopts the requirements made by the Association. This action places the mark of Cain on all wanderers from the path of professional ethics in the beginning and at the end. Now if State medical associations shall take like action, some bodies will get squeezed out. The entertainments provided by the local profession were all that could be desired, and so timed were they that they did not interfere with the legitimate work of the Associations represented.—*Med. Herald.*

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THE meeting was large beyond most persons' expectations; it was also exceptionally representative, for those in attendance were for the most part men of mature age, without the large element of recent graduates usually encountered. The social accessories were enjoyable and to a great extent novel. Enthusiasm and good-fellowship prevailed to a degree unsurpassed, so far as we know, at any of the Association's previous meetings. It is safe to say that the fair city of Denver has proved its capability of taking good care of a large number of visitors; it has also shown its willingness to do so. It was thought by a number of persons that at this meeting some way would be found to reconcile the differences existing between the Association and the Medical Society of the State of New York. We lately expressed some reserve on this point, and the result justifies our lack of faith. Nothing has been done to restore the former relations of the two organizations. Nevertheless, a way was pointed out by the President, in his address, whereby individual members of the profession might join the Association without regard to their State affiliations. It would apply, however, only to those who might be willing to subscribe to the Association's Code of Ethics. Still, it would doubtless let in a great many desirable men, and it seems probable that some such plan will be adopted sooner or later. One of the most important achievements of the meeting was the passage of a measure barring from membership, after a certain date, all physicians who are members of a teaching staff of any medical school that does not conform to the requirements of the Association of American Medical Colleges. The result of this will be to force all the medical schools of the country to adopt the four years' course, on pain of being unrepresented in the Association. It has taken many years to accomplish the enactment of such a measure, and the Association is to be congratulated on its adoption at last. The scientific work done in the Section meetings was quite up to the standard, and the meeting may be said to have been eminently satisfactory from this point of view.—*New York Medical Journal.*

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WE do not believe that the exhibitors at the American Medical Association are ever treated right. They contribute very much to the interest of the Association; the exhibitors constitute a very important feature of this meeting. We understand that at the Denver meeting not one of them received a ticket for the excursion around the Loop; they were not invited to attend the receptions. The gentlemen attending and in charge of these exhibits are in every sense of the word gentlemen. They, as a rule, are men who have traveled; they are men well educated, at home in good society and we believe that they should receive more recognition and should have more courtesies extended to them than they received at the Denver meeting. We do not mention these facts to find fault with the Committee of Arrangements, but to find fault with the way that they are and have been treated at the meetings of the American Medical Association, and trust that they will be treated differently at the Columbus meeting. The next place of meeting will be Columbus, Ohio. Judging by the members of the Columbus profession present at the Denver meeting, the American Medical Profession will be well taken care of next year. The new code bobs up in a general session and bobs down. It is unfortunate that the medical profession of New York is not in full sympathy with the American Medical Association. Whether the new code is right or wrong, we believe that some concessions on both sides are desirable. We trust that between now and the Columbus meeting something may occur which will bring about the burial of the hatchet.—*Denver Med. Times.*

THE meeting of the American Medical Association at Denver was a decided success in every particular. More than 1500 members were registered as delegates, with fully 500 non-registered doctors in attendance; and nearly 1000 visiting ladies. The section work was good, notably in the surgical and gynecological departments, in the latter fully 300 members being often present. There was practically no friction in either section, the debates being of highly interesting character, without personalities. The two subjects which elicited most interest were the remedy proposed by Dr. John B. Murphy of Chicago, for pulmonary tuberculosis, and the discussion on the relation of pelvic diseases to insanity and other nervous affections, participated in by the neurologists and the gynecologists. . . . The joint discussion by the gynecologists and neurologists showed that there is a tendency for the two to come together; that is, no gynecologist can succeed in curing a large percentage of his cases unless he has a pretty thorough knowledge of neurology or works with a neurologist, and no neurologist can properly treat quite a large proportion of his female patients without recourse to gynecological measures. Dr. Joseph Price of Philadelphia was particularly positive that many cases of insanity, as well as epilepsy and other neuroses depend upon gross pelvic lesions, and can be cured only by their removal; and related scores of cases in support of his position.—*Am. Jour. of Surg. and Gyn.*

THE scientific work of most of the Sections was up to the average, but in several the programs were overcrowded, a number of inconsequential papers being allowed to creep in. A more than usual number of absentees from the list of members whose names were on the program for papers was noted. Men who are unable to meet their engagements should make it a point to have their names removed from the Secretary's list of promised papers before such be included in the final program. One of the small annoyances to the audience is the non-appearance of an author whose name and paper have been published far and wide, and who is perhaps one of the principal attractions of the meeting. . . . It is to be hoped that our next meeting will be more productive of original research. The fact that the time of the scientific Sections is cut short during the morning sessions, to allow of attendance upon the general meetings with their political fuss and fol-de-rol, has raised considerable criticism, and it is desirable that more of the general session work be placed in the hands of the Executive Committee, and thus valuable time saved to the scientific Sections. —*Ophthalmic Record.*

THE American Medical Association will hold its meeting of 1899 in Columbus. Our city has been named to follow in the list — Denver, Philadelphia, Atlanta, Baltimore and all those that have preceded. It certainly is an honor to the city and a compliment to the profession and business men who extended the invitation to the Association to come here. The choice is one of responsibility, both for the Association and for the city. The former has expressed its confidence in our representatives, and it now devolves upon us as Columbus citizens and as members of the medical profession, to see that their promises are more than fulfilled. That this will be done we most firmly believe. It means work—painstaking detail work to accomplish this—but it will be after all work of love, and one we have said we only awaited the opportunity to take up. It shall be our endeavor to prove the wisdom of the choice of Columbus, and to the Association the *Columbus Medical Journal* extends the thanks of our citizens for this opportunity to test the virtues of the Buckeye Capital as a convention city.—*Columbus* (Ohio) *Med. Jour.*

THE American Medical Association may well feel proud of the welcome accorded it in the West, and of the unstinted hospitality displayed by the people of the various localities visited by its members. It was generally agreed that one of the most remarkable of the striking features of the memorable excursion around "the Loop" was the manner in which the people of Idaho Springs received and entertained upward of two thousand visitors. The whole town turned out, ladies, children and all, and made the occasion one huge lawn party, in which all were individually welcomed and made happy; yet it was done with such an absence of apparent effort that the guests became possessed with the notion that such wholesale entertainment must be a part of the every-day life of that town. It was one link in a chain of many pleasant recollections which the visiting members carried home with them.—*Med. Record, N. Y.*

VIEWED from every possible standpoint, the meeting of the American Medical Association, at Denver, was the most successful in its history. The only other meeting with which it could be compared was the semi-centennial, held at Philadelphia, but since that meeting was in the heart of the most populous section of our country, having fully 30,000 doctors within a radius of fifty miles, and since only a semi-centennial can justly be compared with it, it must be left out of consideration, in which case the Denver meeting goes into history as the banner one. . . . There can be no question that the holding of our National convention in the State of Colorado has been of great service to the profession, as well as to the invalid public. Much definite knowledge has been gained by the members which is practical and valuable, and could not have been secured in any other way. . .—*Med. Mirror.*

DESPITE the Hispano-American war, the meeting at Denver was a success, and the Association began the second half of its century of existence under most auspicious circumstances. The general meetings were well attended, and the Section meetings were also graced by the presence of many members. From a scientific point of view the meeting was a marked success. It is to be regretted that the present war prevented the President of the Association, Dr. Geo. M. Sternberg, Surgeon-General U.S.A., from being present. His address, which was a masterly one, was read for him during his absence. The 1500 members who were present deplored the necessity of this hiatus. The social features of the meeting were on a grand and magnificent scale, and it will be many years before the Denver meeting is forgotten.—*St. Louis Med. and Surg. Jour.*

DENVER has redeemed her pledges, and the meeting of this Association just closed has been one of the most satisfactory in its history. The very atmosphere of Colorado seemed to be imbued with hospitality. The attendance exceeded all expectations, the registration reaching 1600. In the absence of President Sternberg the chair was gracefully filled by First Vice-president Joseph M. Mathews, M.D., of Kentucky. The entertainments provided by the local committee were not only elaborate but pleasing in the extreme, and the memories of Denver's profession and Colorado's beauty spots will ever remain in the minds of the visiting physicians.—*Med. Fortnightly.*

THIS meeting of the Association was a most successful one in many respects. In numbers it was largely attended, 1100 members having registered at an early hour of the first day. The Treasurer's report shows a very healthy condition and the enrollment of 1500 additional members. The papers read were uniformly interesting and progressive. There seems to have been much less of political action. Dr. Keen's address of last year seems to have done some good. The usual bone of contention, the secretaryship, was left at rest for one time. A number of new measures were introduced, one of which was of great importance, especially in connection with medical education.—*Nashville Jour. of Med. and Surg.*

WE predicted last month that this meeting would be one of unusual worth, and now that it is past, we can say it is doubtful if in the history of medicine there has ever been a meeting of more general interest or one more entitled to be justly and unreservedly termed successful. The efforts of the Denver physicians were Herculean, and their success was complete, even to detail. . . . The work of the sections was in many instances far above the average. Several papers in each section might be mentioned as being of especial interest, but our limited space precludes the possibility of giving even a brief abstract of those which merit notice. Inasmuch as they will be published, and as doubtless all of our readers are members of the Association, or, if not, they should be, they will thus get the benefit of at least reading them.—*Chicago Clinic.*

THE Denver meeting will pass into medical history as one of the most pleasant, enjoyable and profitable meetings the Association has yet held. The arrangements were well carried out, and the various sections carried out their programs on schedule time and were well attended. The registration reached twelve hundred on Tuesday, a remarkably large number when it is remembered that many of our members are now in the service of the United States government.—*Ala. Med. and Surg. Age.*

THE meeting of the American Medical Association in Denver was an unqualified success, and the meeting of the Ophthalmological Section was up to its usual standard, although the familiar faces of Knapp, Risley, de Schweinitz and others were much missed. The humorists of the Section, Drs. Thompson of Indianapolis and Savage of Nashville were there, and added their usual welcome flavoring to the proceedings of

the Section. Drs. Black, Rivers and others of Denver did much to make the meeting successful in adding to the comfort of their fellow ophthalmologists and earned their deepest gratitude.—*Ophthalmic Record.*

THE Association convened in Denver on June 7. Considering the location of the meeting, making it necessary for many to travel a long distance, the attendance was quite large and representative of the ablest and most progressive elements in the organization. The Sections were well attended, and the long list of papers presented in each by leading members indicated the depth of interest in the work, and the fact that each branch of medical science is receiving due attention from the Association.—*Medical Standard.*

THE forty-ninth annual meeting of the American Medical Association at Denver, June 7-10, was attended by a representative of the *Lancet* in order to let our readers have an early and complete account of the meeting. From the expression of all who attended, we believe the meeting was as pleasant and profitable as any that has ever been held. The attendance was large, there being over 1500 registered. . . . To dwell on all the notable features of the meeting is impossible. The discussion of appendicitis in the Surgical Section prominently participated in by Drs. Keen and Murphy was probably the feature of the meeting. All the Sections were well attended and profitable, the Section dinners and receptions extremely pleasant and altogether the Denver physicians and the Denver people did all in their power to make the meeting a memorable one.—*Memphis Lancet.*

THE meeting of the American Medical Association at Denver this year has been in every way successful and progressive. With a single exception, referred to elsewhere, there has been no striking discovery made public, but work in all the Sections has been more serious and solid than has before been customary. The growing popularity and power of the Association were made plain by the increased membership. The registration this year has been 1322, this number being next to the largest in the history of the organization.—*British Medical Journal.*

THE Denver meeting will pass into medical history as one of the most pleasant, enjoyable and profitable meetings the Association has yet held; the arrangements were well carried out and the various Sections carried out their programs on schedule time and were well attended.—*N. A. Jour. of Diag. and Practice.*

THE meeting just closed was one of the most interesting and profitable and most largely attended in the history of the Association. . . . No doubt this meeting will remain in the memory as one of the pleasantest in the history of the Association.—*Annals of Gyn. and Ped.*

NEVER in the history of this Association has a more pleasant and profitable meeting been held, than that which closed at Denver June 10.—Kansas City *Med. Index.*

## NECROLOGY.

JOHN BOARDMAN, M.D., Buffalo, N. Y., died July 9, aged 70 years. He was graduated from the Medical Department of the University of California in 1853 and, later, was for two years demonstrator of anatomy in the Medical Department of the University of Buffalo, from 1854 to 1858 physician to the Buffalo Orphan Asylum, and attending surgeon to the Buffalo Hospital of the Sisters of Charity from 1856 to 1873. In 1883 he was appointed on the board of managers of the Buffalo State Hospital for the Insane. He served on the board until 1891, when he resigned, owing to ill health.

GEORGE W. BURTON, M.D., Mitchell, Ind., July 13.——William B. Cochran, M.D., Middleburg, Va., aged 89 years.——Andrew J. Hare, M.D., Milwaukee, July 6, aged 60 years. David S. Hayes, M.D., Hollidaysburg, Pa., July 10, aged 65 years.——Charles L. Knowlton, M.D., Northampton, Mass., July 5, aged 74 years.——E. A. Parkinson, M.D., Hart, Mich., July 12.——Frank G. Seaman, M.D., Seneca Falls, N. Y., July 12, aged 35 years.——J. J. Warren, M.D., Sharon, July 1.

WARREN PIERCE, M.D., Plymouth, Mass., died July 10, aged 50 years. July 29, 1862, he enlisted in Company K, Fourteenth Massachusetts Regiment, as a private. He was detailed as hospital steward soon after and served two years in that position, when he was appointed second lieutenant of the Fifty-sixth United States colored infantry, stationed at Fort Lookout, where 5000 Confederate prisoners were confined. In July, 1864, his regiment was attached to the Twenty-fifth Army Corps and ordered to the front at Petersburg. Lieutenant Pierce took part in the operations against Richmond and was the third Federal soldier to enter that city. He was graduated from Harvard Medical School in 1869.

WILLIAM HENRY HODGMAN, M.D., College Physicians and Surgeons, N. Y., 1873, died at Saratoga, N. Y., July 15, aged 46 years. He was health officer of Saratoga Springs from 1878 to 1879.

## MISCELLANY.

**Prof. Daniel R. Brower** of Chicago has been elected as a foreign member of the Moscow Society of Neurology and Mental Science.

**A Common Complaint.**—"What are you treating me for, doctor?" "Loss of memory. You have owed me a bill of $10 for two years."—*Tid-Bits.*

**The Souvenir Volume** presented to Professor Durante of Rome on the twenty-fifth anniversary of his professorship, contained 2000 pages in the three volumes, and sixty original communications, including one on the resection of the Gasserian ganglion by Keen and Spiller of Philadelphia, and one by Binnie of Kansas City, on encapsulated epithelioma.

**Quarantine Burned.**—From the *Register*, Mobile, Ala., we learn that the quarantine plant, located in the lower bay, a mile above Fort Morgan, caught fire July 8, and the main building was destroyed. The amount of insurance on the plant was $13,240. The plant was built in 1892 and cost about $60,000. Of the amount required for its erection the State of Alabama appropriated $50,000.

**War Correspondence.**—The readers of the JOURNAL will regret that Lieutenant-Colonel Senn's correspondence last week was sent to the *Chicago Record*, and the letter of this week was sent to the *Chicago Tribune*. As they appeared in those papers before we could get them in type, we were unable to use them. The manuscript which we received has been sent to the Newberry Library.

**Surgical Treatment of Sterility.**—Mann (*Annals of Gyn. and Ped.*, July), in discussing this subject, enumerates the causes of this condition as vaginismus, atresia of the vagina, stenosis of the os, lacerations of the cervix, uterine displacements, endometritis and adenomatous disease, cervical catarrh and tumors. He considers the only relief as surgery, modern surgical methods implying practically no danger in this class of operations.

**Plastic Operations on the Tubes.**—Ries (*Annals of Gyn. and Ped.*, July), believes that the conviction that too many tubes have been removed is gaining ground, and plastic operations on the tubes are being resorted to instead. He considers plastic operations indicated in obstruction of the tubal channel by benignant tumors, extra-uterine pregnancy in certain cases, and "inflammation in cases where there is no pus or other signs of an active stage of the inflammation." Diagnosis of such occlusion may be difficult.

**Hip Joint Amputation.**—Noble, in *Annals of Surgery* for June, reports six cases of hip-joint amputation: One injured by crushing high up in the thigh; two from disease of the bone involving the head of the femur and acetabulum; three and made for osteosarcoma in the tibia. Two were done by trans-

fixion, and three by the use of Wyeth's pins. On account of the objection to the latter method, *i. e.*, "that when the pressure is removed, the amount of blood lost from the oozing of small vessels is perhaps greater than in any other means," he believes the transfixion method is the best.

**An Editorial Change.**—The *Annals of Gynecology and Pediatry*, for June, announces that hereafter Dr. B. Sherwood-Dunn will be jointly interested in the editing and publishing of that journal. Dr. Dunn was graduated at Bellevue Hospital Medical College, New York, 1884, and from the academic department of the University of France, Paris, in 1887, and the medical department of the same university in 1888. He has also had several years' hospital experience in Paris, and in 1897, in recognition of his work in France, was decorated by the French government with the cross of *Officier d' Académie*.

**Operative Wounds of the Thoracic Duct.**—Cushing, in *Annals of Surgery* for June, summarizes seven cases collected from the literature and adds to these two from the surgical records of the Johns Hopkins Hospital. If the duct itself is injured, he considers suture the ideal method, but only in cases where the duct is fully exposed and not completely divided. He advises placing a ligature about the duct on the proximal side of the wound, and control the leakage by a gauze tampon. This would act as a safety-valve and allow the chyle to escape if the pressure in the duct became too great. If the leakage should become uncontrollabe, the ligature should be tied in an effort to readjust the collateral circulation, trusting for some branch to carry the lymph into the venous circulation.

**Lactic Acid in Arthritis Deformans.**—Zolotorin, *La Med. mod., Vol. ix*, in a case of ten years' standing, the last year of which the patient kept her bed, began with ten drops on an empty stomach, no food being allowed for an hour and a half afterward, and gradually increased the dose to forty drops a day. In three weeks the woman could get out of bed and walk a little, the pains being much relieved and the joint circumference slightly diminished. The improvement lasted until no care was required, and ordinary duties could be resumed. No internal medicine other than lactic acid was given, and no external placebo except slight massage.

**Fortress Monroe as a Hospital Point.**—The present indications are that Fortress Monroe is to be made an important center for the care of the sick and wounded during the present war. A corps of twenty surgeons has already been detailed for duty as a beginning, and the large wooden building, at first proposed, is likely to be superseded by tents with ample conveniences. These are to be located on the moat near the fort hospital building, and the superiority of the place, as demonstrated in the civil war, is again to be corroborated. Yellow fever, although regarded by the citizens of Tampa and other points on the Florida coast as a possible source of anxiety, especially at this season, has not thus far ranked as a menacing objection of any magnitude. Still it is not certain that the infected will be brought to Old Point when farther North so easily minimizes the difficulties. Every confidence in the wisdom of the Executive, however, is freely expressed.

**Blastomycosis of the Skin** is the name proposed by Buschke for a new affection described by him at the recent German Dermatologic Congress, with microscopic demonstrations of one case. It is a primary disease of the skin, due to pathogenic blastomycetes, clinically resembling carcinoma, but without its hard edges, histologically belonging to the granulation tumors, and anatomically occupying a middle ground between mycosis and infective granulation tumors. Infection of the blood may lead to the formation of internal tumors, but the skin is the chosen site and entering point even for internal manifestations. He considers the existence of primary intestinal blastomycosis also probable. The existence of pathogenic yeast fungi is established, belonging to the saccharomycetes and oidii, but nothing indicates their connection with malignant tumors.—*Munich Med. Woch.*, June 21.

**Spanish Cruelties.**—Curses, like chickens, come home to roost. Some enthusiastic Cuban has delved in the old Spanish libraries and from a number of books has photographed the wood cuts made at the time, selecting those which illustrate the cruelty of greed of that nation. They form a collection about as grewsome and hideous as the famous chamber of horrors in Brussels. In one picture the methods employed by Pizarro and Cortez to compel the poor Aztecs to reveal the source of their wealth are shown. The favorite system was to stretch a man on the ground between two posts and then to build a fire near the soles of his feet. Another was to set fierce hounds upon a man. The terrible part of the story is that these practices were not done underhandedly, but openly, by their perpetrators, and the drawings were put in these old books to show how ingenious and efficient the system was.—*New York Mail and Express.*

**Melancholia.**—Loveland in the *New York Medical Journal* of June 25 presents a contribution on this subject, accompanied by a table showing the results of an examination of the blood in fifty-seven cases. He considers the main feature of the treatment, feeding, sometimes forced feeding with liquid food, and in the fifty-seven cases, concluded from the study of the blood that it was neither deficient in hemoglobin nor hemocytes at the initial or early stage of the disorder; in fact, he found it above the average in these particulars. He says: "That after the loss of appetite, always present, and the frequent entire refusal to take food, and the impaired digestive power associated with such a mental condition, the blood first loses its richness in coloring matter, and later in the corpuscular elements." He considers it a circumstance worthy of note that while many people with thick blood are melancholy, he has never seen any signs of melancholia in profoundly anemic cases.

**Albumosuria in Medical Practice.**—In the *American Journal of the Medical Sciences* for July, Fitz reports a case of myxedema in which albumosuria continued throughout the progress of the disease, a symptom which, with but a single exception, has hitherto been unrecorded. He says that while transitory albumosuria has proven of but "little practical value except in the diagnosis of acute pneumonia, deep-seated suppuration, including meningitis, and of macerated fetus," greater value is to be attached to persistent albumosuria, and its importance has been especially suggested during late years in the diagnosis of multiple but latent tumors of the trunk, principally multiple bone tumors and in myxedema, and in but few cases of these affections. "Whatever the value of albumosuria may be in diagnosis, its persistent and excessive presence is apparently a sign of grave prognosis, since the cases in which this condition has been found have, almost without exception, proven fatal."

**Jaundice in Typhoid Fever.**—In the *American Journal of the Medical Sciences* for July, Da Costa presents observations made on this subject in the Pennsylvania Hospital during the past winter. In some of the cases jaundice was associated with parotid swelling, which he considers more than a coincidence. In some it occurred as a late symptom and in one case, which he considers unique, it distinctively preceded the development of typhoid fever, occurring during the latter part of the incubation period. Previous to the five cases reported, he has met with but one instance of jaundice in typhoid fever, although jaundice is not infrequent when there is a complication of malaria. He finds that the symptoms attending jaundice are not constant, but as a rule the symptoms of a severe case of typhoid fever. Delirium is apt to be present, but it was not much aggravated by hepatic conditions, and there were intervals when the mind was clear. High temperature was the rule,

chills not uncommon, and the pulse remained rapid. He believes that jaundice in such cases is usually due to a blood condition, with more or less disorganization of the red corpuscles and often associated with alteration in the liver cells. All the cases reported show the symptom to be a grave one, the fifty-two cases resulting in thirty-three deaths and nineteen recoveries.

**Micro-organisms Resembling the Tubercle Bacillus** have been isolated by A. Moeller from timothy and other grass and the fresh droppings of the domestic animals. Inoculated into rabbits they produce a miliary tuberculosis, nodules in the omentum, giant cells, cheesy patches in the lungs, deceptively similar to the lesions of genuine tuberculosis. Other animals and a few rabbits were not affected by them. His preliminary communication in the *Deutsche Med. Woch.* of June 16 describes their rapid, dry growth, yellow sediment, and resistance to alcohol. They stain like the tubercle bacillus, which they closely resemble morphologically and in their growth on glycerin agar. On bouillon this micro-organism forms a delicate, transparent, dry, pale yellow skin on the water, extending 2 to 3 cm. up the glass. Shaking the tube breaks off fragments which sink to the bottom. He concludes by detailing the points in which this "timothy bacillus" differs from others in its growth, etc.

**The Wounded in this and the Previous War.**—Surgeon-General William K. Van Reypen, United States Navy, according to the Washington lay press dispatches "has received a report from the surgeons with the fleet that in the many cases of wounded, some of them serious, not a rise of temperature nor an accumulation of pus has appeared in any case. From a medical standpoint this is said to be a marked advance from the conditions during the Civil War, and is attributed to the introduction of antiseptic treatment of wounds." An old army surgeon in the confidence of the JOURNAL excepts to this statement in part, for he maintains that "in the Civil War the most exemplary cleanliness was enforced in the hospitals, and that the method of irrigation was adopted from the start; further, that there was a rivalry among the ward-masters of the pavilion tents as regards the best appointments and comforts. This was certainly the case in the Western divisions of the army, where private mansions and close quarters were from the first tabooed. Certainly proper drainage was always the aim in the treatment of suppurating wounds." Much talk in reference to "laudable pus" was the vogue, but was generally looked upon as a significant sign of ultimate recovery. In fact, he says: "To some it was an 'unknown god,' ignorantly worshiped." To all of which may not the statement be added that in the matter of antisepsis there are many makeshifts which scarcely baffle the Anglo-Saxon mind. It may be recalled that bromine, when introduced by Surgeon Goldsmith, vanquished the hospital-gangrene occasionally prevalent.

**A German Medico-Legal Decision.**—The so-called "Seidel case" (a trial for libel), recently terminated at Brunswick, Germany, was a remarkable judicial proceeding, unlike anything met with in the courts in America or England. The Government of Brunswick and certain assistants in the Brunswick General Hospital united in prosecuting the brothers of the late Dr. Seidel, one of the attending surgeons in that institution, for publishing a charge to the effect that he had been impelled to commit suicide by the intrigues and falsehoods of his assistants and by the severity of the Government in suspending the professor from his hospital functions before he had been heard in his own defense. The trial excited great interest in the medical profession in Germany, and many eminent surgeons testified as experts, the weight of opinion being strongly in favor of the correctness of the late Dr. Seidel's conduct and against the manner in which he had been treated by the assistants in the hospital. Their principal grievance against him appears to have been his indifference to antiseptic precautions in surgery, but the expert witnesses declared that the assistants had exaggerated ideas on this subject. The court in the end acquitted the brothers of Dr. Seidel and declared that the accusations against the deceased surgeon were unjust.

**The Unsung Heroes.**—Dewey and Bagley and Hobson and Schley and Blue and Neville and Shaw, the heroes of Guantanamo, Capron and Shafter, and all the long list of men who have distinguished themselves in this war, officers and men, are deserving of all the generous praise that has been bestowed upon them for the brave deeds they have done and for their unfaltering devotion to duty. Their example is of inestimable value for its influence upon their fellow-citizens both in civil and military life. They are a source of inspiration which tends to a higher order of patriotism in all the walks of life and all the duties of the citizen. The patriotic uplift is discoverable to the most distant part of the country, and in the remotest hamlet. It manifests itself in greater love for the flag, greater pride in citizenship, greater fidelity to civic duties. War is a great character-maker. The heroes of the field and of the wave are its exemplars, and under the spell of hero-worship men grow better. All honor to the Deweys and Hobsons and the rest of them. Yet there is one class of heroes whose praises are seldom sung and whose patriotic sacrifices receive but slight recognition in the dispatches from the front. But they are there, exposed in greater or less degree to the fortunes of war, doing their duty without hope of acknowledgment and performing their daily and nightly tasks with a devotion that knows no flagging, and without the spur and the inspiration of the cavalry charge or the shriek and crash of the flying shells on board the man of war. The surgeon's duties on the field and in the hospital tent preclude the incentive of excitement, and are attended by none of the dramatic action of war. No matter what the conditions, whether for the time in comparative safety or when his scene of operations becomes the center of the hottest fire, as sometimes happens, he stands at his post, offering his own that he may save the life of another. While remembering the heroes of the sabre and the gun, do not forget the heroes of the scalpel and the probe. They are never courtmartialed for cowardice. And no wonder. Bravery in the face of danger is no new thing for them. The volunteer surgeon has not learned courage and ceased to be afraid because of any "baptism of fire." He has faced danger before. The faithful and skillful doctor is always in the thickest of ths fight in the battle of life. He has learned all there is to be learned of bravery and self-sacrifice in the midst of the deadly epidemic, and in the panic of pestilence and plague he acquired the courage which makes a hero of him now. God bless the doctors! They are the salt of the earth. No class of men see so much of the suffering and misery of life; none do so much to relieve distress without hope of reward in this world. And the doctors at the front—congress passes no resolutions of thanks to them, and presidents and public do not applaud their fidelity to duty. Why, then, are they there? What glory awaits their efforts? Their only reward is the satisfaction of duty done; the approval of their own consciousness that their skill and experience and their limit of endurance have been spent without hesitation in the service of their country and in behalf of their fellow men. Remember the men, give praise and honor to sacrifice and courage and steadfastness in the face of the enemy, and remember the unsung heroes, too.—*Minneapolis Journal*, July 14.

**Commercial Greatness of the United States.**—The Chief of the Bureau of Vital Statistics of the Treasury Department kindly furnishes us the following:

More than three-quarters of the $1,200,000,000 worth of our productions which were sent abroad during the fiscal year just ended went to Europe, while only one-half of the $[illegible] worth which we imported came from Europe. Nearly one-half of our exports of the year went to the United Kingdom alone, while our imports from the United Kingdom were less than one-fifth of our total importations.

While the full figures of the fiscal year are not yet complete, the reports of the Bureau of Statistics covering the eleven months ending June 1 are sufficient to show who have been the purchasers of the enormous aggregation of domestic pro-

ductions which the United States has distributed to the world in this year of her greatest commerce. Our sales to Europe are more than three times as much as our purchases from that part of the world, the exports to Europe during eleven months of the year being $901,014,786 and the imports from European countries in the same time $281,091,002. To the countries of North America we have sold 50 per cent. more than we have purchased from them, our exports to them for the eleven months being $127,125,929, against $81,287,488 of imports from them. To Africa we have sold more than double the amount of our purchases, the exports to that part of the world being $16,097,959 in the eleven months whose record is completed, and the imports $6,786,017. Here the scale turns against us, for in our commerce with South America, Asia and Oceanica our sales to each of those countries have been far less than our purchases from them. To South America we sold during the eleven months in question only $30,748,846 worth, while our purchases from that part of the world were $85,859,245. To Asia our sales were but $41,561,531 and our purchases therefrom $85,381,158. To Oceanica our sales were $19,979,555 and our purchases $23,365,132. It is gratifying to observe, however, that in our trade with Asia, where all nations of the earth are now striving to extend their commerce, there has been a material gain in our exports during the year, the total being nearly 15 per cent. greater than that of last year.

The figures for the year will show a marked improvement over those of last year, the exports to Europe being more than three times the imports from Europe, while last year they were not quite double the imports; the exports to North American countries will be nearly fifty million dollars in excess of the imports from these countries, while last year the excess of exports was less than twenty million dollars; our imports from South America will be 150 per cent. in excess of our exports to that part of the world, while last year they were more than 200 per cent. greater than the exports.

There is not a country, indeed scarcely a spot, in the civilized portions of the globe which has not been a customer of the United States in the year just ended. From the United Kingdom, whose purchases for the year are nearly six hundred million dollars, down to Paraguay with a total of less than one thousand dollars, the continents, countries and the islands of the earth have purchased of the plenteous supplies which the United States has been able to offer to the world in this greatest year of her commerce. To the United Kingdom the exports for the eleven months were $501,756,263, against $452,926,890 in the corresponding months of the preceding year. Germany came next as a purchaser, our total sales to that country being $148,416,065, against $116,881,478 last year. The next largest purchaser was France, to which we exported $87,012,841 in the eleven months of the year, against $54,575,298 in the corresponding months of the preceding year. Next came British North America with purchases amounting to $76,160,414, against only $50,676,594; then Netherlands with $59,733,226, against $46,436,034 last year; then Belgium with $44,006,379, against $30,469,416 last year; Italy, $21,849,377, against $20,205,301 last year; Mexico, $19,304,687, against $21,396,395 last year; Japan, $19,260,415, against $12,466,433 last year; British Australasia, $14,213,606, against $16,197,092 last year; Brazil, $12,694,163, against $17,413,345 last year; Denmark, $11,604,578, against $9,627,047; British Africa, $10,953,954, against $12,216,080; Spain, $10,193,800, against $10,208,637, and China, $9,036,727, against $10,981,919 last year, while none of the other countries of the world reached the $10,000,000 line in the eleven months whose record is now complete.

Our purchases abroad, as already indicated, are much less than those of last year, being for the eleven months $563,770,032, against $679,557,391, and for the full year likely to be but a trifle in excess of $600,000,000, against $764,730,412 last year. This year our total exports will practically double our imports, while last year they were less than 25 per cent. greater than our imports. As above stated, one-half of our importations came from Europe. Our largest purchases during the year were from the United Kingdom, which, as already indicated, was our largest customer, our total purchases in the eleven months from the United Kingdom being $101,454,480, against $148,588,675 in the corresponding months of last year. The next largest purchases were from Germany, from which we bought in the eleven months $61,916,809 worth of goods, against $88,364,012 last year; Brazil next, from which we bought $58,203,762, against $64,695,383 last year; then France, $49,480,413, against $60,095,025; British North America, $28,528,539, against $34,757,841 last year; and during the eleven months of 1898 we bought $24,164,842 from British India, $23,180,892 from Japan, $19,484,387 from China, $18,209,368 from Italy, and $16,142,491 from Mexico.

The following table gives our exports to, and imports from the grand divisions of the world during the eleven months ending June 1, 1898:

| | IMPORTS. | EXPORTS. |
|---|---|---|
| Europe | $281,091,002 | $901,014,786 |
| North America | 81,287,474 | 127,125,929 |
| South America | 85,859,245 | 30,748,846 |
| Asia | 85,381,158 | 41,561,531 |
| Oceanica | 23,365,132 | 19,979,555 |
| Africa | 6,786,017 | 16,097,959 |

## Societies.

The following recent meetings are noted:

*Iowa.*—Austin Flint Medical Society, Iowa Falls, July 12 and 13; Iowa Union Medical Society, Cedar Rapids July 13; Southwestern Minnesota Medical Society, Sibley, Iowa, July 14.

*Kansas.*—Academy of Medicine, Topeka, July 11.

*Kentucky.*—Lexington and Fayette County Medical Society, Lexington, July 11.

*Massachusetts.*—Franklin District Medical Society, Greenfield, July 12; Hampden District Medical Society, July 19.

*Nebraska.*—Elkhorn Valley Medical Society, Norfolk, July 12; South Omaha Medical Society, July 9.

*New York.*—Jefferson County Medical Society, Watertown, July 9. Oneida County Medical Society, Utica, July 12; Ontario County Medical Society, Canandaigua, July 12; Wayne County Medical Society, Lyons, July 12.

*Pennsylvania.*—Berks County Medical Society, Reading; Lackawana Medical Society, July 12; Lycoming Medical Society, Williamsport, July 8; York County Medical Society, York City, July 7.

*Vermont.*—Union Medical Society, Bennington, July 13.

*Wisconsin.*—Brainerd Medical Society, Milwaukee, July 13.

## Louisville.

EXAMINATIONS.—Secretary McCormack of the State Board of Health held the examination as provided by the recent law regulating the practice of osteopathy, and but one woman presented herself to stand the test. The annual meeting of the State Board of Pharmacy was held in this city last week for the purpose of examining candidates for the practice of pharmacy in the State. Quite a large class took the examinations.

CATTLE.—Since the convention at St. Louis, some time ago, the attention of the State Board of Health has been directed especially to the prevention of the shipment of cattle through the State without proper examination. There is a Government inspector in the city who is doing specially good work and is guarding against the importation and transportation of diseased cattle. There has been some ground for complaint on the part of Indiana and Illinois because of diseased cattle being shipped through Kentucky, and to guard against this an important meeting of the Health authorities, State and local, was held last week to look into the matter and adopt regulations. The following were present: County Judge Gregory; M. K. Allan, Health Officer; J. N. McCormack, Secretary of State Board of Health; Wm. Bailey of the State Board; and Geo. W. Griffiths, B. W. Smock of the County Board and F. C. Eisenman, State Veterinarian. Under rules adopted Dr. Eisenman will examine all cattle which pass through the State and none will escape that are diseased.

## Philadelphia.

SURGEONS OF THE KEYSTONE STATE ARE BEING DISCRIMINATED AGAINST.—There a great many surgeons in the Volunteer Army from Philadelphia and the State at large now at the front. Owing to the laws of certain States the assistant surgeons in the Volunteer Army take the rank and draw the same pay as a captain. In Pennsylvania no such State law prevails, and therefore, assistant surgeons from this State take rank and draw pay as first lieutenants. When it is considered that the Commonwealth of Pennsylvania was one of the first States to furnish its quota of men and gave up its national guard through the ruling of the War Department, it is a source of regret that the medical men are not put upon the same footing as those from other States. It is reported that Governor Hastings has made a test case of and has submitted the facts to the War Department for its decision regarding the matter.

A GLORIOUS FOURTH.—The following casualties are reported

by the different hospitals of the city for July 4: Howard Hospital: Burns 2, contusions 4, gunshot wounds 1. Episcopal Hospital: Burns of the hands, face and neck 11, gunshot wound of finger 1, lacerated wound of finger 1. St. Joseph's Hospital: Burns 3, lacerated wound of finger 1, laceration of hand 1. Presbyterian Hospital: Burns of hands and face 10, lacerated wound of finger 1, dislocation of shoulder from discharge of gun 1. German Hospital: Burns of hands, face and neck 11, gunshot wound of finger 1, lacerated wound of finger 1. Jefferson Hospital: Burns 2, gunshot wound of forearm 1, gunshot wound of hand 1. Medico-chirurgical Hospital: Burns 4, contusions 2. Polyclinic Hospital: Burns 5, lacerated wounds 5, fracture of humerus 1.

HOW THE MORTALITY OF CITIES IS INCREASED.—No better exemplification of the increase in the death rate of cities is needed than to study the enormous increase in the number of cases of cholera infantum as observed during the summer months. For instance, in Philadelphia there have been 720 deaths, of which 185 were caused by cholera infantum alone. During this same period 27 deatbs from sunstroke occurred, so that, taking into consideration the different agents which give rise to the increased death rate, we must assign it first to the intense heat which has prevailed, together with rapid fermentation which set up these digestive disturbances. If it were possible to place a medical inspector in each home during the season of intensely hot weather, who could give proper advice regarding the judicious use of sterilized and proper foods, the death rate of any city could be improved. The average person, however, will go on from day to day and give the child uncooked milk, candy, sour potatoes, or probably decayed fruit, and if the child happens to be teething nothing else is needed to bring on an attack of cholera infantum and consequent death. It is hard to convince the average ignorant mother of the dangers attendant upon the administration of improper foods, for the doctor will readily detect that the attention of the patient is lost before he gets through explaining technical terms which she can not comprehend. So the death rate of cities will continue to be high for some time to come. The principal causes of death were: Cholera infantum 185 deaths, tuberculosis 41, inflammation of stomach and bowels 38, marasmus 32, Bright's disease 22, old age 28, heart disease 25, sunstroke 27, cancer 20, apoplexy 17, paralysis 16, dysentery 4, diarrhea 2, convulsions 4. Of the total number it shows an increase of 214 over last year for the same period; 393 were in children under 5 years of age.

INFECTIOUS FEVERS.—This week: diphtheria 11 deaths, 49 cases; scarlet fever 2 deaths, 17 cases; typhoid fever 13 deaths, 51 cases. Last week: diphtheria 10 deaths, 56 cases; scarlet fever no deaths, 26 cases; typhoid fever 10 deaths, 58 cases.

HOT WEATHER EFFECTS.—July 4 the temperature at 5 A.M. was 76 degrees, 8 A.M. 83 degrees, 12 M. 93 degrees and 2:30 P.M. 99 degrees. The humidity was excessive and finally culminated in a hail storm. So intense was the heat that forty-one prostrations were reported, of which seven proved fatal. Children suffered most and the effects are shown by the increased number of deaths from cholera infantum.

PERSONAL.—Dr. Albert E. Roussel of Philadelphia, who holds an important position in the faculty of the Medico-Chirurgical College, sailed last week for Europe, where he will remain for several months. While away he will attend clinics at Vienna, Berlin, London and Paris.

MEDICAL BOARD.—The next meeting of the Medical Board of Pennsylvania will be held in Philadelphia, December 12.

## THE PUBLIC SERVICE.

**Assignments, etc., of Medical Officers.**—To the 1st Army Corps, Major General Brooke, at Chickamauga Park, Ga.: Acting Asst. Surgeon Sidney J. Myers, from Louisville, Ky. To the 2d Army Corps, Major General Graham, at Camp Alger, Va.: Majors Edward Martin and M. C. Wyeth, brigade surgeons, and the following acting assistant surgeons, all from Washington, D. C.: Chas. L. Baker, Howard H. Bailey, Wm. P. Cornell, George L. Hicks, Chas. G. Eicher and John A. McKenna. To the 3d Army Corps, Major General Wade, at Chickamauga Park, Ga.: Major Louis Brechemin, U. S. A., Major R. Emmett Griffin, chief surgeon, and Major Chas. E. Ruth, brigade surgeon. To the 4th Army Corps, Major General Coppinger, at Tampa, Fla.: Lieut. Bailey K. Ashford, U. S. A., from Ft. St. Philip, La., and the following acting assistant surgeons: Julius A. Escobar, Richard Wilson, Frank W. Jay, John S. Donaldson, Eugene T. Hancock and Wm. E. West. To the 5th Army Corps, Major General Shafter, at Santiago, Cuba, from Tampa or via Tampa, Fla.: Major John G. Davis, Surgeon 7th Regiment Volunteer Infantry and the following acting assistant surgeons: Maynard G. Burgess, Roger P. Ames, Wm. B. Winn, Eduardo C. Poey, D. T. Lainé, S. M. Gonzalez, all from Tampa, Fla.; J. Stebbins King from Decatur, Ill.; Chas T. Newkirk from Washington, D. C.; J. A. Dunwoody from Cripple Creek, Colo.; Allen P. Ebert from Atlanta, Ga., and Chas. L. Le Roux from Pass Christian, Miss. To the 7th Army Corps, Major General Fitzhugh Lee, at Jacksonville, Fla.: Lieut. James S. Wilson, U. S. A. To the 8th Army Corps, Major General Merritt, Philippines: Major Geo. F. Shield brigade surgeon, while Capt. Thomas U. Raymond, U. S. A., has been relieved from duty with the expeditionary force reporting to the commander of the Dept. of California. To the general hospital, Ft. Monroe, Va.: Major Lewis Schooler, chief surgeon from one of the divisions of the 3d Army Corps, and the following acting assistant surgeons: Robert E. Bell, Carl H. Andersen and E. W. Pinkham, all from Washington, D. C.; S. Melville Waterhouse from Ft. Myer, Va.; John S. Fogg from Biddeford, Maine; A. W. Williams from Gainesville, Ga., and Berwick Bruce Lanier from Baltimore, Md. To the general hospital, Ft. Myer, Va: Acting Asst. Surgeon Joseph J. Curry from Boston, Mass. To the general hospital, Key West, Fla.: Acting Asst. Surgeon Geo. R. Plummer from Washington, D. C. To the Leiter general hospital, Chickamauga Park, Ga.: Acting Asst Surgeons Joseph C. De Vries and Dudley W. Welch from Washington, D. C.

Major H. H. Arthur, chief surgeon, has been ordered to New York City for the purpose of outfitting a hospital ship.

*Resigned.*—Lieut. Thos. L. Jenkins, Asst. Surgeon, 8th Massachusetts Infantry, on account of disability.

### CHANGE OF ADDRESS.

Allen, C. J., from Peterboro, N. H., to East Barnard, Vt.
Bower, A. L., from 253 S.W. Temple to Progress Bldg., Salt Lake City, Utah.
Benson, J. A., from 103 State St. to 833 Washington Blvd., Chicago.
Bailey, J., from Denver to Florence, Colo.
Brewster, B. H., from Euclid to Hooker, Pa.
Cosgrove, T. M., from Auburndale to 3327 Monroe St., Toledo, Ohio.
Carpenter, J. W., from Cincinnati, Ohio, to Omena, Mich.
Davidson, S. S., from New Castle to Wampum, Pa.
Dicken, H. W., from Ann Arbor to Romeo, Mich.
Fanner, J. C., from 2022 Portland Ave. to 1315 Clinton Ave., Minneapolis, Minn.
Flood, John, from 297 N. State to 237 W. Erie St., Chicago.
Goffe, J. Riddle, from 22 E. 35th St. to New London, Conn.
Haines, W. D., from 588 to 1606 Freeman Ave., Cincinnati, Ohio.
Hays, T. D., from 257 S. Wood St. to 352 Randolph, Chicago.
Hedden, C. H., from Chicago, Ill., to Charles City, Iowa.
Hart, M., from Denver to Grand Lake, Colo.
Kaull, W. M., from Ohio, Ill., to Princeton, Ill.
Lebrecht, J. C., from 14 E St. to 900 S. 4th, St. Louis, Mo.
McGahan, C. F., from Aiken, S. C., to 24 W. 57th St., New York.
Mather, E., from Paterson to Jersey City, N. J.
McGready, J. H., from Chicago, Ill., to Independence, Iowa.
McCreery, L. M., from Rocky Ford to University Park, Colo.
Neilson, W. H., from 33 Metropolitan Blk. to 104 Garfield Ave., Milwaukee, Wis.
Nunstedt, S. H., from Keokuk to Rudd, Iowa.
Osborne, G., from 161 Michigan St. to 27 N. Clark, Chicago.
Pirosh, B., from 195 W. 13th Pl. to 43 McAllister Pl., Chicago.
Ruth, C. E., from Keokuk, Iowa, to 3d Army Corps, Chickamauga, Ga.
Renn, T. H., from 227 Townsend to Packerton, Ind.
Sternman, W. F., from Louisville, Ky., to Evansville, Ind.
Searles, L. M., from Kansas City, Mo., to Mount Ayr, Iowa.
Somers, L. S., from Philadelphia to Analomink, Pa.
Somers, G. B., from 133 Larkin St. to 1034 Mission, San Francisco, Cal.
Toron, M., from Palace Hotel to 131 N. Clark, Chicago.
Thompson, A. M., from Portland, Maine, to Snowville, N. H.
Underwood, A. M., from Lancaster, Pa., to Grove Beach, Conn.
Wilson, J. B., from Mt. Vernon, Ind., to Canon City, Colo.

### LETTERS RECEIVED.

Angell, C. W., Joliet, Ill.; Armstrong, V., Pueblo, Colo.; Adams, J. Q., Columbus, Ohio.
Barlott, I. C., Hooversville, Pa.; Bewley, W. E., Warrensburg, Tenn.; Boehringer & Soehne, C. F., New York City; Byers, J. Wellington, Charlotte, N. C.; Bridge, Norman, Los Angeles, Cal.; Beecroft, W. G., Madison, Wis.; Balke, A. F., St. Louis, Mo.; Berkin, Robert Jr., Provo City, Utah; Boone, H. W., Shanghai, China.
Cooper, W. R., Point Pleasant, Pa.; Chase, E. W., Omaha, Neb.; Cheney, I. V., Chicago; Crane, A. M., Marion, Ohio; Carabana Company, The, New York City.
David, E. L., Louisville, Ky.
English, D. C., New Brunswick, N. J.
Farbenfabriken of Elberfeld Company, New York City.
Gibbon, J. H., Philadelphia, Pa.; Gihon, A. L., Sykesville, Md.; Gahm, J. P., Ellisville, Ill.; Gregory, Geo. A., Boothbay Harbor, Maine.
Huntsinger, K. M., Osawatomie, Kan.; Hertzler, A. E., Halstead, Kan.; Hummel Advertising Agency, A. L. (2), New York City.
Johnston, E. A., Danville, Ill.
Kiernan, James G., Chicago; Kellogg, J. H., Battle Creek, Mich.
Lyon, P. H., Lyons, N. J.; Lentz & Sons, Chas., Philadelphia, Pa.
Macnaughton, W. A., Stonehaven, Scotland; McKheen, F. G., Denver, Colo.; Moody, H. A., Bailey Springs, Ala.; Macdonald, W. G., Albany, N. Y.; Marsden, B. R., Philadelphia, Pa.; Moore, J. S., Grant's Pass, Oregon; Mitchell, C. W., Baltimore, Md.
Norwich Pharmacal Company (3), Norwich, N. Y.; Nicholson, W. G., Green Bay, Wis.; Nutrolactis Company, The, New York City.
Peabody, C. H., Milliken, Mich.; Penning, O. P., Baltimore, Md.; Powell, N. A., Toronto, Can.
Rowell Advertising Co., Geo. P., New York City; Rawlings, J. A., El Paso, Texas; Rosse, I. C., Washington, D. C.; Reed, G. D., Topeka, Kan.; Randolph, R. L., Baltimore, Md.; Reed, G. P., Philadelphia, Pa.; Reynolds, Dudley S., Louisville, Ky.
Shoemaker, J. V., Philadelphia, Pa.; Smith, Kline & French Co. (2), Philadelphia, Pa.; Sutton, E. M., Peoria, Ill.; Stone, R. M., Omaha, Neb.; Schuster, Ed. & Co., Milwaukee, Wis.; Shlensky, I. (2), Cleveland, Ohio; Sander, Eno, St. Louis, Mo.
Todd, F. C., Minneapolis, Minn.; Talbot, E. S., Chicago; Tromp, J. H., Collinsville, Ohio.
Woldert, E. A., Philadelphia, Pa.; Walker, H. T., W. Dubuque, Iowa; Whetstone, Mary Snoddy, Minneapolis, Minn.